

MEDICINE

Some Thoughts on Diagnosis

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This article sets down some observations on diagnosis. No effort is made to cover all the processes used in the making of a diagnosis. Indeed no mention is made of the procedures of physical examination and laboratory investigation. By contrast certain aspects of history taking are analyzed in some detail.

Now the importance of history taking is obvious. It has been stressed repeatedly and in various ways. Thus Professor Robert Platt has shown that 68 per cent of cases seen for the first time in a busy out patient department could be diagnosed on the history alone. "Far more mistakes are made by putting too much significance upon doubtful physical signs and neglecting the clear indications of the history . . ." Let us start by examining the procedure of history taking as related to an analysis of leading symptoms.

Patients present themselves with one or more symptoms and further history taking then proceeds. Consider first the situation where the presenting symptom suggests disordered function of a particular system of the body. Thus cough suggests disease of the respiratory tract, vomiting draws attention to the stomach and diarrhoea to the intestine. Such symptoms focus our attention on an organ of the body. History taking should now proceed to enquire of the other known symptoms produced by disease of that organ. With cough as the presenting symptom further enquiry must be of those other symptoms of respiratory disease such as sputum, haemoptysis, dyspnoea and pain in the chest. The purpose of this deliberate enquiry is two-fold. First it serves to establish that the focus of attention is (or is not) correct. If the further symptoms all draw attention to the lungs we accept the presence of pulmonary pathology. At the same time by evaluating the particular combination of symptoms present we may arrive at the diagnosis of a definite disease. In this type of case then, diagnosis by history taking proceeds from a main symptom to the focus of attention on a particular system and on to a definite diagnosis. Nevertheless it is obvious that a localizing symptom may indicate disturbed function of an organ rather than disease of that organ. This disturbance of function may be reflex or part of a general toxæmia or it may be caused by psychosomatic mechanisms but be

that as it may, it is liable to cause an erroneous focus of attention. However, if the procedure outlined above be used it will establish the fact that the syndrome of gastric symptoms present does not suggest gastric pathology. History taking should then proceed to try and establish a second centre of attention. Further enquiries will be made in the knowledge that gastric symptoms are not rarely due to extra gastric pathology e.g., renal failure, intestinal disease, anaemias, pulmonary pathology, neurological, endocrine or psychiatric disease. The concept is of importance for many symptoms may be thus deceptive. In passing it is noteworthy that gastric symptoms in particular are very liable to fix the attention incorrectly, a fact which physicians constantly have in mind in considering such symptoms.

Next let us apply the concept of localizing symptoms to the diagnosis of cancer. We have seen that localizing symptoms focus attention on an organ. If such symptoms persist they persistently focus the attention. In a patient of the cancer age such a persistent focus is highly suspicious. It follows that should such symptoms, newly arisen, persist or progress in a patient of the cancer age then the diagnosis of cancer of the particular organ is seriously to be considered. Thus within the qualifying limits set out should any patient complain of persistent symptoms of either epigastric pain or nausea or vomiting or loss of appetite or any combination of these symptoms then the diagnosis of cancer of the stomach must be considered. Equally when a patient complains of pain in the chest, of undue dyspnoea, or cough the diagnosis of cancer of the lung must be suspected. Of course any cancer arising from a mucous membrane may bleed and give rise to such alarm signals as haemoptysis or haematemesis. Such signals at first appearance are to be given full attention and they also, in the appropriate context, raise the suspicion of cancer. What is advocated here is the wider perspective that any localizing symptom may herald the diagnosis of a local cancer. It is true that there is much detail of value within the broader view. In the individual case as the important details of evidence are collected so does the clinical diagnosis become increasingly probable. Thus anorexia occurs early in cancer of the stomach but this fact assumes its proper importance only on the background of the more general truth. If the latter be not recognized then the early diagnosis of cancer will be missed in spite

of the knowledge of detail. Indeed the very knowledge of detail may prove deceptively comforting in the absence of the general index of suspicion indicated above. Certain it is that the presence of a good appetite does not rule out the diagnosis of cancer of the stomach.

Further to the above the same concept can be illustrated in the obverse. We have already shown how localizing symptoms may make possible a diagnosis of cancer. Now we will see how we can predict the clinical picture of many cancers by this simple thought process. Thus cancer of the stomach would give rise to persistent symptoms of gastric disease, to epigastric pain, to disturbances of appetite, to nausea, to vomiting and to haematemesis. It is generally stressed in addition that the patient with gastric cancer has previously enjoyed an excellent digestion. But the tempo of untreated cancer precludes the possibility of long standing disease and it is possible to predict that any cancer will cause recently noticed symptoms. It follows that we can predict that cancer of the colon would cause recent change of bowel habit, pain over the appropriate area of the colon, and perhaps bleeding from the colon. The value of the thought process becomes obvious when the individual looks back on the considerable efforts made to master the factual detail of the clinical picture of cancer of this or that or other organ.

Thus far attention has been directed to symptoms that indicate diseased organs. But it is well to realize that disease produces a composite picture of features due to a local pathology and of those due to a general toxæmia. Now the degree of general toxæmia can be assessed by the general condition of the patient, the degree of fever or tachycardia and many other such indices. The extent of local pathology can be judged by the symptoms referable to the organ and by the results of such local examination as are possible. It is realized that such methods of assessment are crude. Nevertheless it is frequently true that the degree of general toxæmia varies as the extent of the local disease. Many examples come to mind: the degree of toxæmia in pulmonary tuberculosis will vary as the extent of the active disease; the toxæmia in lung abscess will vary as the amount of retained secretions; when local healing occurs in ulcerative colitis the general condition of the patient improves. But many exceptions also occur and add to the difficulties of diagnosis. For when the composite picture shows a lack of balance between the evidence of local pathology and that of general toxæmia the diagnosis may become doubtful. For example during a major epidemic of bacillary dysentery some cases present themselves in a profound state of toxæmia with high fever and cerebral manifestations and yet it is only on the most careful enquiry that one learns

that the bowels have been opened loosely two or three times. At the opposite extreme some patients seem to achieve a compromise with the invading organism. Occasionally the tuberculous patient and his bacilli appear to thrive in symbiosis and there is little evidence of general toxæmia in spite of much local disease.

The diagnostic situation where the general toxæmia occurs early and is prominent and localizing features are late in appearance or insignificant has been introduced. It is natural to enquire about the procedure under such circumstances. For instance the patient complains of fever and loss of weight and feeling run down. History taking should try to establish a focus of local attention. Are there respiratory, gastrointestinal, genitourinary or other such localizing symptoms and signs? If such are found the further diagnostic effort is directed accordingly. If such features are not found the diagnosis may proceed in one of several ways. It is possible that the problem is now considered under one or other well recognized category such as "Loss of Weight" or "P.U.O." If it is so there is available a well known battery of investigations to help solve the problem. Alternatively the general toxæmia present may have sufficient character to make it recognizable, and thus it may assist in the particular diagnosis of disease. Pulmonary tuberculosis is an excellent example: when it presents with loss of weight, slight evening fever and night sweats the disease can be suspected even in the absence of any respiratory symptoms or signs.

Pulmonary tuberculosis has been introduced as an example of disease with a characteristic general toxæmia. It is worthwhile to consider the matter further. Anorexia, amenorrhoea or neurasthenia are all listed as early presenting features of the disease. This factual knowledge, at first sight a little startling, is best appreciated if it be understood that the toxic process of the illness is such that it is liable to direct attention away from the lungs. Further, the disease frequently presents itself insidiously. Thus current discussion of pulmonary tuberculosis in the old state, "The symptoms are insidious and may be masked by the general process of ageing" whereas discussions of the disease in children again stress the vague and indefinite onset. It were better for all concerned to realize that it is not the age group but the infecting bacillus that lends character to the disease. Pulmonary tuberculosis is a disease with insidious onset and a toxic process that deranges many functions. From all this there does emerge the obvious fact that unexplained ill health in man, woman or child is not infrequently due to latent pulmonary tuberculosis. But then an appreciation

the obvious may well be the beginning of wisdom.

The concept of localizing features has already been applied to the diagnosis of cancer. Now we see that the position was incompletely explored at that stage, for cancer may present with features of general toxæmia and inadequate localizing features. Cancer of the pancreas illustrates the present argument for when it occurs in the head of the organ it heralds its presence with an early strangling of the bile ducts; whereas when it originates in the body because of the absence of localizing features diagnosis may well be delayed till laparotomy or even to autopsy. A further illustration of the same thought is to be found in the fact that, in the right age group, cancer is a prominent cause of pyrexia of uncertain origin.

At this stage it is worth while to spare a moment to put together again what has been analyzed for simplicity of presentation. We have seen that disease presents as a composite picture of localizing features and of those due to general toxæmia. We have studied the procedure to be followed in either case. It remains to be summarized that in every case whatever the presenting features diligent enquiry must be made for both aspects of disease. For the physician is searching for clues and many more mistakes are made from not seeking than from not knowing. The procedure is time consuming but short cuts are liable to produce short measures of diagnostic success. This train of thought diverts the attention to the constant necessity for deliberate enquiry about the familial personal and social history of the patient. Innumerable pertinent examples could be quoted but one must suffice. The patient is suffering with hypertension. The significant facts that his father died of dropsy, his uncle died of a stroke and that his brother suffers with blood pressure will be missed in the absence of detailed and deliberate enquiry. Ask a patient if there is any family history of blood pressure and he will usually reply in the negative. But enquire about the cause of death in his blood relatives, enquire about the health of his elder brothers or sisters and satisfactory clues as to the family history will usually be obtained. And if the reader questions the value of the information so gained it must be added that the management of essential hypertension, which is a familial disease, differs from that of many types of secondary hypertension.

Now we must revert back to our analysis of leading symptoms. Two further groups of symptoms will be dealt with although it is clearly realized that the possibilities have by no means been exhausted. The first of these two groups can be defined by giving examples. Jaundice as a symptom suggests a particular line of thought that depends largely on factual knowledge, on lists

of causes that are disliked by examinees and others. Jaundice as a symptom seems to unlock a compartment of the memory and almost as a reflex the mind runs through haemolytic, obstructive and hepatocellular, infective hepatitis and syringe jaundice and all that. Similarly haematemesis as a symptom suggests a presumptive diagnosis of peptic ulcer. The clinician thinks also of the possibility of cirrhosis of the liver perhaps of other causes. Nevertheless throughout the management of the case the original presumption of peptic ulcer holds the field unless further investigation rules it out of court. This class of symptom then where the further management of the problem depends almost upon a "reflex" reaction to a given stimulus requires no further attention.

The last group of leading symptoms to be mentioned is that of pain. Now pain, as a presenting symptom, is so common as to deserve special mention. The adequate definition of pain will frequently establish a complete clinical diagnosis. By contrast insufficient enquiry about the pain itself may lead to loss of the one vital clue. Diagnosis then cannot proceed however satisfactory the rest of the investigation may be. When a patient complains of epigastric pain it is possible to miss the entire significance of his symptom if enquiry has not yielded the information that the pain occurs only on effort or exertion. Professor Ryle's "Natural History of Disease" should be consulted for the detailed scheme of clinical enquiry into pain as a symptom. Here it is sufficient to summarise with enquiry into the character (burning, stabbing, aching, boring, griping, etc.), and severity of the pain, into its aggravating and relieving factors. Three points are questioned with regard to the position of the pain in space—viz., its location, its localization and its paths of radiation. Three further points are questioned with regard to the position of the pain in time, its duration, its frequency and its special times of occurrence. If the cause of a patient's pain be not obvious some such scheme is essential to the enquiry.

A few thoughts on the diagnosis of disease have been set out and the emphasis has been on history taking. Let us examine now the situation where the whole evidence of history taking, of physical examination and of investigation has been accumulated. The mental process of arriving at diagnosis under these circumstances so often depends on probability that some expression of the position is called for. The principles involved are best illustrated by a few simple examples. A pulse that is irregularly irregular is diagnostic of auricular fibrillation. But note that the pulse which is an index of ventricular activity is used to diagnose an abnormal state of auricular action. What is implied in such a diagnosis is the statement that the commonest cause, by far, of a completely irregular

ventricular activity is auricular fibrillation. (Occasionally such a pulse is associated with auricular flutter and occasionally with extra systoles).

Another example of this mental process implicit in medical diagnosis is illustrated in what follows. An epidemic of infantile paralysis is in progress and we see many cases with fever, meningeal irritation, paralysis and typical lumbar puncture findings. Under such circumstances we have a justifiable prejudice that the absence of paralysis in the above syndrome indicates an abortive or non-paralytic attack of infantile paralysis. Further, during the epidemic, when we see a case with typical fever and neck signs we are ready to diagnose poliomyelitis even in the absence of both paralysis and lumbar puncture findings. Let it be clear that every one of these examples of diagnosis is based on probability. For it is possible that the fully developed picture might conceivably be due to some infection other than that of infantile paralysis and complete diagnosis would demand the isolation and recognition of the virus. The other examples listed represent lesser probabilities, but satisfactory diagnoses nevertheless. That certain lesser probabilities are adequate diagnostic criteria is based on factual knowledge, on increasing gainful experience and on a suitable critical faculty. Such a complex is not imparted by rule of thumb and it is in the field of uncertain differential diagnosis that the ability of a physician is tested. But this much is recognized as simple and true. It is generally profitable to fit all the facts of the case into one diagnosis. The faculty to select the odd case that justifies a double diagnosis comes later.

Apart from the use of probability there are other mental processes that influence the final making of a diagnosis. One of these is now outlined. There is a characteristic picture of disease which has a recognizable quality. Within this picture we seek that which is essential to render the disease an entity recognizable from other syndromes. Yet it must be emphasized that the absence of any single clinical feature of disease cannot be held to rule out the diagnosis of that disease. There is nothing more characteristic in the attack of coronary thrombosis than the excruciating substernal pain; and yet an attack may be painless throughout its entire course. Infective hepatitis may occur without jaundice and infantile paralysis without paralysis. Toxic goitre

may be diagnosed in the absence of tachycardia and the same diagnosis may be held even if the basal metabolic rate is normal. It is suggested here that diagnoses should be accepted when all the characteristic features are absent, not only that the absence of any one feature might rule out the possibility. Thus haematuria, albuminuria and oedema are cardinal features in the diagnosis of acute nephritis and yet one or other feature is not very rarely absent. Indeed there is a recognized syndrome of acute nephritis without albuminuria. Other examples could be brought forward but enough has been said to express the thought under consideration. It is to be noted that having formulated and accepted this principle the author was guilty of teaching a class that a patient could not have typhoid fever because he had so much fever his mind was not clouded over. It remains to add that the report on the post-mortem blood culture was immediately triumphant and conclusive.

Summary

This article deals with history taking as a basis to an analysis of leading symptoms. It also expresses some views on the final mental process of arriving at a diagnosis when all the evidence has been collected.

Leading symptoms are analyzed into groups. The diagnostic procedure is examined in each case. The concepts of localizing features of general toxæmia as presenting features are examined. These concepts are illustrated in regard to the diagnosis of cancer and of pulmonary tuberculosis.

The principle of probability as applied to the mental process of diagnosis is explained by illustration. The author suggests the principle that the absence of any single characteristic feature of a disease syndrome should not be regarded as sufficient evidence to rule out the diagnosis of that syndrome.

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Comparison of Sternal and Spinous Process Bone Marrow Punctures

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Within the last three years, examination of bone marrow at this hospital has developed into a rather neglected and obscure form of diagnostic laboratory aid in diagnosis to a very competent and highly respected diagnostic adjuvant. As this has gathered interest and proven its usefulness, the staff of practitioners and internes have become better acquainted with this examination, there has been a tremendous increase in the number of requests for this procedure. In 1944-45 less than 10 punctures were done here; in 1947, 140 were done, and in 1948 more than 220 have been done already. The reasons for this large increase have been (1) improvement in the technique of marrow puncture so that it is not an "operation," but rather a minor and less upsetting than a lumbar puncture, (2) careful analysis of the elements found in marrow by specially trained technicians and interpretation by pathologists.

There are many indications for examination of bone marrow. These are:

Leukemia. All types are usually easily differentiated. Particularly in the aleukemic type, where peripheral blood may only show a marked anemia and leukopenia, a marrow examination is diagnostic.

Anemias. The differentiation of the various types is often possible by marrow. Primary and secondary anaemias give a completely different picture. In the secondary forms, a clue to the primary diagnosis, such as occult hemorrhage, myeloid metaplasia, or aplasia may be suggested. The presence of abnormal cells of disseminated lupus, Hodgkin's or metastasizing carcinoma may be seen.

Culture. In bacteremias and septicemias marrow is a very useful source of material. A positive culture is sometimes obtained when peripheral blood is negative. Particularly in the case of undulant fevers, when not only a positive culture may be obtained but the specific granulomas of undulant fever may be seen.

Technique

The universally accepted technique of obtaining marrow has been, until this year, sternal or manubrial puncture. The method at this hospital has only been manubrial. In this method, the needle passes through the sterno-manubrial joint, which is usually fibrous, making the aspiration easier and less painful. At this hospital, we have never had a complication from using this site. However, there are certain objections; these are:

(1) The patient faces the operator, and sees what is going on. This frequently causes some discomfort and fear. The patient also has the opportunity to breathe directly onto the operative site.

(2) The operator is usually fearful of possible complications because of the proximity of the inner table to the anterior mediastinum.

(3) There is some pain when suction is exerted in the sternal marrow cavity. These factors have always caused a certain amount of reluctance on the part of the physician, and the patient is often reluctant to undergo a second puncture if this is necessary. Earlier this year reports appeared on another site suitable for obtaining marrow—the spinous process of a lumbar vertebra. This approach overcomes some of the above mentioned objections. The patient faces away from the operator, and the fear of penetrating vital structures is absent. As well, the cortical bone over the tip of the spinous process is thinner than the sternum, suction pain is less, and the area is easier to anaesthetize. In our present series we have asked each patient who underwent sternal and spinous process marrow examination which they preferred. The great majority preferred the spinous, a few were not upset by either, and not one considered the sternal more acceptable. To the operator, the spinous process approach was the better.

Results

Normal series have been reported and it has been shown that there is no marked difference between these two sites. In our series we have done simultaneous sternal and spinous process marrow aspirations on 22 patients with various diseases in which this examination was considered to be useful in diagnosis or treatment. In none of these has there been any significant finding in one site which was not mirrored in the other. In a quantitative analysis it can be shown that there is no more significant difference between sternal and spinous process marrow than there is between two simultaneous sternal aspirations.

Summary

(1) The indications for bone marrow aspiration have been given.

(2) The results and usefulness of spinous process puncture has been compared to sternal puncture.

(3) It has been found that spinous process aspiration is less painful to the patient, simpler for the operator, and gives the same results as sternal puncture.

The Management of Thermal Burns

(Presented at Manitoba Medical Association Meeting, October, 1948)

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The mortality and the morbidity associated with thermal burns is still of considerable magnitude, despite the many recent advances in the management of these cases. There were 38 deaths in the Province of Manitoba from thermal burns in the year 1947 and the morbidity associated with extensive deep burns is still familiar to us all.

It is not the purpose of this paper to deal completely with the many and varied problems that arise in the care of burns, but to present a simplified over all picture of the problem.

There are many methods of classifying burns as to depth; the usual one in degrees. 1st degree, simple erythema; 2nd degree, blister formation and partial destruction of the skin; 3rd degree, destruction of the full thickness of the skin. Possibly an even simpler classification is the division into superficial and deep burns.

From the standpoint of evaluating results of treatment and prognosis one must differentiate those burns which heal quickly from those which heal slowly.

The Converse — Robb-Smith classification of epidermal, dermal, deep dermal, and deep burns does just this as it differentiates the superficial from the deep burns especially those of so called 2nd degree.

It is also essential to recognize a full thickness burn and this can be done by its white, greyish, or brown opaque appearance, its insensitivity and lack of color change on pressure.

The proportionate area burned forms a useful guide as to prognosis and treatment. Thus a knowledge of the relative size of body areas is of utmost importance and for this estimation one may use a Berkow burn chart or some modification.

The management of thermal burns may be divided into 6 stages and carried out in this order:

- (1) first aid treatment; (2) treatment of burn shock; (3) treatment of the local burn area; (4) removal of slough and the combatting of infection and anemia; (5) early plastic care; (6) late plastic care.

A burn by its very nature is sterile and any contamination comes from without. All that is necessary in the first aid care of a burn is to wrap the burned area in a clean towel or sheet, not necessarily sterile unless such is at hand. The use of tangel, greases, flour and the many varied household remedies should be condemned. Exclusion of air from the burn wound along with the administration of sedatives will make the patient comfortable.

There is perhaps no condition in which the general treatment of the patient is of such importance as in burns. Local treatment must be used in a manner that it doesn't interfere with, but complements and supplements general treatment. Burn shock is the most serious factor in burn treatment and is responsible for over 60% of the deaths. It might be said that one should treat burn shock and treat it adequately, and almost disregard the local burn area.

The management of burn shock should be anticipation and prevention rather than treatment when well established. Any child with over 10% body surface burn and any adult with over 20% body surface burn 2nd degree, should be treated for burn shock, regardless of blood pressure, pulse rate, hemoglobin estimation or hematocrit reading. One need not wait till burn shock becomes apparent with hemoconcentration and physiological imbalance before treatment is begun.

Fluid replacement therapy is the cornerstone of all treatment of burn shock. Plasma in large amounts is lost into and from the local burn wound and must be replaced to restore and maintain blood volume. Various substances may be used to combat burn shock and probably the most generally useful and practical is either blood serum or plasma. Even more efficacious than normal serum or plasma is the use of concentrated serum or plasma 2 or 4 times.

Recently again whole blood intravenously or electrolyte solution by mouth has been used effectively in the shock phase.

The amount and rate of plasma administration depends upon many factors. Firstly, it must be remembered that the fluid lost is roughly proportional to the area of burn surface. However, both of the face, hands and genitals, which are highly vascular areas with loose subcutaneous tissue, are accompanied by particularly high fluid loss. Secondly, the rate of fluid loss is maximal for the first few hours after a burn then gradually decreases till equilibrium occurs in 36-48 hours.

There is no formula available which can be used to estimate the amount of plasma necessary for the first 48 hours. In fluid replacement therapy one should give plasma early and follow its administration by constant supervision, using hemoconcentration as an index for further treatment.

As a guide one may give:

In children—3 ccs for 10 lbs. per degree rise in Hgb.

In adults—50 ccs per degree rise in Hgb.

If no lab. facilities available:

100 ccs for 1% body surface burn given on the basis of:

1/2	during the first 4 to 6 hours
1/4	during the next 6 hours
1/4	during the next 12 hours

Let us take for an example a 60-pound child with a 20% body surface burn, 2nd and 3rd degree. Without treatment this child will show in the latter of a few hours hemoconcentration of 20 or more points of Hgb. (Not forgetting that, in children the normal Hgb. is below 100%. In a 2-year-old 80% and a 5-year-old 90%). Thus one should anticipate this rise and give plasma accordingly.

$$3 \text{ ccs } \times 6 \times 20 = 360 \text{ ccs of plasma}$$

This should be given fairly rapidly and then the child's condition assessed at intervals and further plasma given as needed.

Only after treatment of burn shock has commenced should one consider treatment of the local burn wound. There is still no general agreement to the primary local treatment of a burn; yet this phase of the management of burns has changed more than any other. Gone is the use of tannic acid and dyes on the burned area following extensive debridement under anaesthesia. All this has been replaced by minimal gentle cleansing of the burn wound under sedation; and followed by the application of some bland ointment and a pressureclusive dressing.

Ideally any local dressing should be:

Non toxic and non irritating.

Prevents exposure of nerve endings.

Limits local plasma loss.

Prevents further contamination.

Combats infection.

Promotes rest and tissue healing.

Easily and rapidly applied with least amount of after care.

The burn wound should be dressed by aseptic technique in an operating room or its equivalent, with all persons masked. The burned area should be gently cleansed with soap and water or some detergent if dirt or grease are present. Fragments of loose, dead skin should be removed. Blisters should not be broken unless very extensive.

Some bland ointment such as vaseline, penicillin cream, or sulfathiazole cream is then applied on a meshed gauze to cover the burn surface. (At present time aluminum foil is being used directly on the burned surface and this obviates maceration which results when vaseline or ointments are used). Then several layers of gauze and padding are applied with an overall crepe or rubber bandage to apply pressure. All this is covered by a light plaster cast with the joints immobilized in position of function. This dressing is left in place for 10 to 14 days; at which time, on removal, first and superficial 2nd degree burned areas will be completely healed.

From the beginning the patient is placed on a high protein, High carbohydrate and High vitamin diet. Fluids are forced by mouth and the output maintained over 1000 ccs. daily.

The next phase in the treatment of burns consists of securing early wound healing. As has been previously stated, 1st and superficial 2nd degree burns will be healed in 10 to 14 days. On more deeply burned areas there is a slough consisting of dead skin elements; this is firmly adherent and it harbors infection and prevents healing. Antibiotics and sulfas will control the spread of infection from the burned area but cannot reach the organisms lodged in this dead tissue. Thus removal of this slough is essential.

The refractoriness of full thickness burn wounds has impressed many, and it has indeed been an imposing problem. The cleaning up of the burned area with the removal of the slough so that early grafting and healing is possible has been approached from several angles:

Firstly—By surgical excision of slough either immediate or delayed. Immediate excision of a localized full thickness burn can be done in cases without general metabolic changes and followed by grafting. This reduces infection to a minimum and prompt healing of the wound takes place with minimal scarring, disability and disfigurement. Delayed excision can be carried out in 8 to 16 days and followed by either immediate or delayed grafting.

Secondly—By chemical dissolution of slough which may be accomplished by the use of pyruvic acid starch paste, cevitic acid dressings or trypsin powder.

Thirdly—The slough can be allowed to separate spontaneously or by the aid of wet dressings or baths. By this latter method it is feasible to graft some areas in about 25 days but usually treatment for a month or so is required before the granulation tissue is fit for grafting.

The burn bath is the most satisfactory method of treating burned patients, especially when awaiting spontaneous separation of the slough, and between stages of skin grafting. In a burn bath the patient is comfortable and the dressings are soaked off with a minimum of pain. Early joint motion is possible and is easily carried out, minimizing the danger of secondary contractures. Criticism of this method on the grounds of the need of a special bath, trained personnel, constant supervision and risk of infection are unfounded. Any bath cleansed well, lysoled and then filled with normal saline at a temperature of 100 degrees can be used. Burned patients are tubbed daily except after skin grafting when they are left dressed for 4 to 5 days. After tubbing, the burned areas are dressed with $\frac{1}{2}$ strength eusol or 1-12 hygeol.

The general condition of the patient after the first few days of the burn injury is determined by the open nature of the burn wound. Large amounts of protein are lost from the raw surface and in extensive burns hypoproteinemia soon re-

sults. This can be partially corrected by giving huge quantities of protein in the diet and intravenously. However, marked improvement does not occur until the burn wound is covered by skin.

Similarly, in extensive full thickness burn wounds, a marked secondary anemia results which can be only partly controlled by repeated transfusions of whole blood and iron by mouth. A full response does not occur until wound healing takes place.

One must rely on clinical judgment and experience as to the optimal time for grafting and whether or not excision of granulations should precede grafting attempts. Exuberant and old fibrotic granulations should be excised but as a general rule grafting can be done directly on the granulating wound without any preliminary preparation.

Skin grafting in recent years has become a much more efficient and widespread procedure with the advent of the dermatome. A large piece of skin can be quickly and easily cut and used to cover the open burn wound. Sheet grafts under tension form the best type of graft and flexure creases are covered first to minimize contractures. Patch or stamp grafts may be used to help cover extensive areas. Both these types are cut with the dermatome, or a comparable instrument at a thickness of about 16/1000's of an inch. Pinch grafts are mentioned only to condemn their use.

In extensive full thickness burns, a maximum of two drums of skin should be cut off a patient at any one operation. This should be sewn quickly on the granulation area and the wound redressed. Severely burned patients do not stand long and traumatizing operations. Such a patient may be grafted at weekly intervals until complete healing is obtained.

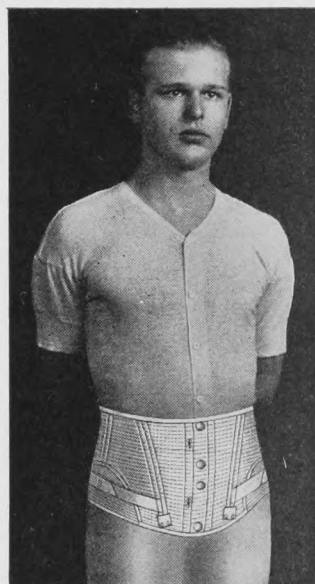
After healing has taken place an interval of at least six months should elapse before late reconstructive work is undertaken. This consists of the management of unstable scar epithelial areas and contractures. When the full thickness of the skin is destroyed by a burn an open wound results. Unless this skin is replaced, early healing occurs by contracture of adjacent tissue and by scar epithelium. Thin burn scar epithelium and burn keloid are many times not adequate to give a permanent surface. This is particularly true on exposed portions of the body and in the lower limbs. The epithelium is dry and subject to cracks, and irritation, and may break down over large areas on slight trauma or circulatory disturbance. Unstable burn scar can be replaced by split thickness skin grafts for the most part, however, in some areas final restoration may have to be in the nature of a flap or pedicle.

In repairing healed contractures, surrounding skin and subcutaneous tissue may be utilized.

Z-plasty, single or multiple here finds a application, especially in web contractures, where the web itself is utilized in the repair. Split thickness skin may be used as a permanent cover after the opening of large contractures. Thus the increased use of Z-Plasty's and split thickness skin grafts in the management of contractures need of repair by pedicled flaps has diminished. Along with correction, the judicious use of splinting and adequate rehabilitation aid in the restoration of a patient to maximal functional capacity.

In conclusion let me emphasize again that the important features in the management of burn patients are the early and adequate treatment of burn shock and following this the securing of wound healing. In full thickness burn wounds the latter is accomplished by skin grafting.

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Next Meeting

The Regular Meeting of the Winnipeg Anaesthetists' Society is held on the first Tuesday of every month in the Medical Arts Club Rooms.

"Whither" Anaesthesia

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"I have recently read, with mingled sadness and surprise, the declarations that anaesthetics are needless luxuries." So wrote George Wilson, eminent physician and chemist, in an anonymous letter to Simpson, one hundred years ago¹. This lament was being voiced then only because Wilson, like many others, feared that means to alleviate pain would be abandoned in the face of fierce opposition by some members of the Church and of the Medical profession. In our enlightened age, however, no one questions the usefulness of anaesthetics, particularly those who bend over the pain-stricken, listen to them and try to relieve their suffering.

The relief of suffering has an intrinsic, but relative value. Were it embodied with an absolute attribute or quality, treatment of symptoms other than pain in disease would become quite purposeless to the medically uninitiated. The medical fraternity, prone to focus its attention on the patients' needs and demands, would soon turn out to be known, upon graduation, as "doctors in analgesia et anaesthesia," or prosaically as analgesists, narcologists, soporifologists, narcoticologist, somnologists, anaesthesiologists, etc. . . . According to their respective specialty. Fortunately, such is not the case. But it would be better if there were more graduates (and people) interested in this aspect of medicine. Or could it not be the case to a greater extent, at least in the Province or in the country at large?

Is not anaesthesia of great importance to the patients, the hospitals, and the medical profession alike? Then if it has a place in the exercise of medicine, one can ask what place it should occupy, and who should execute the duties related to anaesthesia.

The Patient and Anaesthesia

The patient, for one, usually appreciates the services of an anaesthetist. In his eyes, the anaesthetist is the person (more than often mistaken for an orderly, a nurse or an intern) who will "put

him to sleep with a needle" because his doctor has promised him so. The anaesthetist, who ranks as high as a private in the hierarchy of the medical red tabs (except in the army!), ordinarily acknowledges the instruction and carries it out, yet, as if he were incapable of advising, he is not asked to decide with his confreres what form of anaesthesia might be the most suitable for any particular patient, even though his knowledge will assure the patient of better protection against surgical assault.

Sometimes the anaesthetist becomes an object of strong dislike to the patient's family, particularly when the patient has died on the operating table. Yet such a calamity, taking place during the operation, amounts to just over one case in a thousand according to Gillespie who made an analysis of 228,000 anaesthetic records from five teaching hospitals².

The public realizes, then, that anaesthesia is a service of some importance, a service only too soon forgotten when the bill for a small, non-exorbitant fee is received. This bill was not expected, not discussed by any one, and on the whole is resented as coming from one who just did what he was told and who was not even asked to administer the anaesthetic—as if he were an X-ray Specialist, for instance! Any doctor's fee is quite tolerable but an anaesthetist's charge seems packed with cyclopropane instead of helium!

Under present circumstances in this Province, the public is certainly not to be blamed for any grievance that anaesthetists might wish to air. It is up to the anaesthetist to build his own sign and display it. But it behooves anaesthetists to assure patients of the best medical care they can offer before, during and after operations. Their responsibility is great and people at large deserve their unquestioned, if underestimated, attention and consideration.

Hospital and Anaesthesia

It has been stated that several of the more recent surgical advances have been made possible through the somewhat slow but nevertheless steady growth of anaesthesia. To say that more medical men, within recent years, have devoted their endeavours to help accomplish this end in the field and practice of anaesthesia would be more appropriate. A technician, no matter how experienced, lacks the necessary knowledge of physiology, pharmacology, pathology, clinical diagnosis to discharge duties with which he cannot or should not be entrusted. Hospital administrators, facing new demands, have attempted to satisfy these demands. But the change in the service offered has brought

about a change in financial liability. The financial status of the anaesthetist has been modified radically.

Can our hospitals stand this added expenditure? Voluntary hospitals certainly are under no immediate obligation to provide an anaesthetic service any more than an obstetrical service. Anaesthesia is a medical service, not merely a technical one. Then, should hospitals dispense medical service? If they do, they will naturally expect the anaesthesia service to show a profit. Either the patient will be exploited if revenues exceed expenses, or the physician-anaesthetist will be shorn if his salary is niggardly or if a sufficient number of anaesthetists is not employed³.

Eventually, hospitals will have to find adequate sources of revenue to keep competent anaesthetists in their employ, they will be forced to replace them with untrained personnel, or simply to leave out anaesthesia as a direct responsibility.

Retreat in the economic field might mean gain in better service. . . . A most illuminating article by a Mr. John M. Storm, executive editor of "Trustee"—the Journal for Hospital Governing Boards (Vol. 1, No. 6), humbly entitled "The Truth About Anaesthetists"⁴ ridicules the idea that the physician-anaesthetist is an indispensable person in the Operating Room. He, too, thinks of this place as the anaesthetist's only work-shop! Too much glamour, he believes, has recently been added to a minor medical specialty that has never attracted much attention even within the medical profession, one reason being the routine execution of a narrow skill. (The lot of specialization, according to Lord Moynihan!)

The law of our land precludes employment of non-qualified medical personnel for the administration of anaesthetics. Perhaps, under supervision, it would be more advantageous to utilize the skill of trained technicians rather than of untrained medical individuals; but we must remember that our jurists laid down the rule that the dispensation of a direct medical service rests in the hands of trained medical men and women, whether it consists in "giving a swig" or "giving a whiff."

Additional fees constitute an extra burden. Should there be more expenses? If so who will or can afford them? Or, if the limit has been reached, should values and costs be re-assessed? Should the X-ray of a wrist, or a full blood-count, or a circumcision all cost more than a one-hour anaesthetic? Or must we relegate anaesthesia

back to its primitive stage and spend more time and money to study Stoicism?

The Profession and Anaesthesia

Had de Quincy written something like "Confessions of an Ether Sniffer," his anaesthetist would have hesitated to consider himself as a regular physician. He likely would have thought of himself as a para-medico, although realizing through time, that he had developed numerous abilities, like heaving patients on to stretchers, picking up instruments without distracting the surgical team, deftly wiping responsibility-laden brows, pricking into veins, filling oxygen tanks, or keeping his composure when gases detonated.

For lack of time, he seldom could attend clinical meetings, having to spend long mornings in the operating room and the rest of the day checking the hang-overs of his victims. In the presence of practicing doctors and specialists he would have felt embarrassed when they discussed even his own problems. They would have seemed to know so much more about his own work, the remuneration he was to receive, than he did himself, that he would feel tempted to remain as inarticulate as before, or to abandon his addiction because more and more of his fellow anaesthetists rejoined the "right" path of medical practice or sought more temperate climates, and also because less and less could be induced into the anaesthetic discipline, this chronic shortage of fellow-workers becoming an added source of worry.

In conclusion, if there is any necessity of having anaesthetists as such, means must be undertaken to train them, to employ them, and retain them before anaesthesia starts withering.

References

1. Robinson: Victory over Pain, Schuman, N.Y. (1946), p. 20.
2. Gillespie, N. A.: Brit. Anaesth. 19, 1 (1944).
3. Conroy, W. A.: Modern Hospital, 66, 3, p. 96.
4. Storm, J. A.: Trustee, 1, 6, p. 14.

You Are Welcome

The Anaesthetic Staff at the St. Boniface Hospital welcomes visits from practitioners who are interested in Anaesthesia. Rural practitioners who are engaged in part time anaesthesia are particularly invited to observe the work in the operating room and to discuss their problems concerning pre-anaesthetic care, selection of anaesthetics, administration and post-anaesthetic care.



CANCER

Edited by D. W. Penner, M.D.

A Clinical Pathological Conference

Dept. of Medicine and Pathology, Univ. of Man.

Clinical Summary

First Admission (April 13, 1946 - April 25, 1946).

The patient, age 74, stated he had been in good health until the beginning of the year.

January, 1946. Began having bouts of R.U.Q. pain coming on soon after eating and accompanied by a sense of epigastric fullness and belching of gas.

March 28, 1946. Now began to vomit nearly everything he ate.

April 10, 1946. Pain became more severe and it hurt to take a deep breath. Pain was a steady ache with superimposed cramps occurring about every hour.

Review of systems was essentially negative except for nocturia 2 or 3 times a night and some difficulty in starting to void.

April 13, 1946. Admitted to hospital. Examination showed:

(1) Tenderness and guarding in R.U.Q. Positive Murphy's sign. Temperature was elevated to 100 one day only.

(2) An ulcer 1 cm. in diameter on left eyelid.

(3) Heart sounds said to be faint, no enlargement.

Investigations

(1) Gall bladder failed to visualize on two attempts, no calculi seen.

(2) Icterus index 6; W.B.C. 20,000.

(3) Urine: 1.022, occas. pus cell, albumin .01% in one specimen.

Course: Pain soon disappeared and after a course of radiation to ulcer of eyelid he was discharged to O.P.D. where he got along nicely on diet and mild laxatives.

Second Admission (Nov. 4, 1946 - Dec. 6, 1946).

Admitted for removal of cataract of left eye which was done Nov. 5. On Nov. 7 he developed pain in the R.U.Q. and right lower chest in the axillary line, and frequent vomiting occurred. Again marked tenderness and guarding were present in the R.U.Q. Temperature ranged from 102 to 100. On Nov. 13 a pleural rub was heard over the right base posteriorly and there was now a suggestion of a mass in the R.U.Q. He looked rather pale and his hemoglobin was found to be 77%.

On this admission a systolic precordial murmur was recorded. B.P. 100/80.

He gradually improved and was discharged on December 6.

Third Admission (April 16, 1947 - April 22, 1947).

Excision of a chronic ulcer of the right ear was carried out. This had been present for 3 months.

Fourth Admission (Aug. 18 - Nov. 25, 1948). Re-admitted complaining of:

(1) Recurrence of R.U.Q. pain which had troubled him intermittently since January, 1946. Since August 1 it had been more severe.

(2) Severe headache—for 3 weeks, since end of July, 1948. A constant, severe, throbbing pain beginning in the right parietal region and radiating to the occiput, the right mastoid, and down the back of the neck. Worse at night and prevented sleep for 2 weeks before admission.

(3) Severe anorexia for 2 weeks—since Aug. 4, 1948.

(4) Diarrhoea for 3 weeks—since end of July, 1948. About 9 movements per 24 hours, no pain and stools formed.

(5) Loss of 18 pounds in 3 weeks—since end of July, 1948.

(6) Lumps in the neck—for 6 days—since Aug. 12, 1948.

Examination revealed a cheerful, blind, moderately deaf old man in no obvious distress.

Head and Neck: Eyes—blind—light perception only in iridectomized left eye. Pupils fixed. Nose—scarred (post-operative). Ears—upper portion of right pinna has been removed. Mouth—edentulous. Neck—firm non-tender nodes palpable in anterior and posterior triangles of neck, sub-occipital region and in both supraclavicular regions.

Chest: Movements diminished but equal. Breath sounds are faint. Some expiratory rhonchi posteriorly.

Heart: Regular, rate 76. Heart sounds faint. There is a loud systolic murmur over the precordium, loudest over the aortic area. B.P. 210/80.

Abdomen: The liver and spleen are palpable and tender. There seems to be a mass in the epigastrium which is extremely tender and hard to define.

Limbs: Nodes in both axillae. Moderate water-hammer pulse. Reflexes—knee and ankle jerks absent. Plantar responses doubtful.

Investigation

(1) **Blood:**

	Hb. %	W.B.C.	Polys. %	Lymphs. %	Sed. Rate
Aug. 18, 1948	72	9,800	45	50	52 min.
Sept. 19, 1948	83	9,350	49	38	45 min.
Oct. 13, 1948	55	7,950	42	36	68 min.

(2) **Urine:** Many specimens. Highest spec. grav. 1.026. Constant albuminuria (.02-.08%). Pus cells, 0-30.

(3) **Stools:** 7 negative for occult blood. 2 negative on culture for pathogens.

(4) **Gastric Analysis:** Achlorhydria after histamine.

(5) **X-rays:** (a) Chest: atherosclerosis of aortic arch. (b) Barium Enema: normal. (c) Barium Series: Persistent narrowing of the antrum. Mucosal pattern slightly irregular. Consistent with a small gastric ulcer in the antrum with associated antral narrowing. (d) Pyelography: both kidneys functioning satisfactorily.

(6) **Biopsy of lymph nodes** (right cervical group).

Course

During the first week in hospital he ran a low-grade fever (99-100) but for the next 4 weeks was afebrile. Then for 5 weeks he occasionally had a temperature of 99. Temperature rose somewhat about the middle of October but following three X-ray treatments and penicillin it remained normal for 4 more weeks, rising again just before death.

October 23—Developed moist crepitations over the left anterior chest. X-ray showed a density of the left upper lobe.

November 3—Condition essentially the same. Seems emotional.

November 10—No change. Spleen larger.

November 25—Died.

Summary of Autopsy Report

Elderly, emaciated white male. There is a small basal cell carcinoma above the eyebrow and the upper third of the right pinna has been removed. A 1.5 cm. lymph node can be palpated in the left posterior cervical triangle. Cranial cavity shows no significant changes.

Thoracic Cavity

In either pleural cavity are 1500 cc. of clear yellow fluid and firm adhesions bind both apices. The paratracheal and tracheo-bronchial nodes are markedly enlarged, some nodes measuring 4 cms. in diameter. They are discrete, soft, whitish yellow and homogeneous. The trachea and main bronchi contain purulent frothy mucus but they are patent.

Right lung, 580 gms.; Left, 390 gms. At the right apex is a firm white plaque measuring 6 x 4 cms., at the side of this are adhesions. Sections of this area reveal some fibrosis of the parenchyma. Otherwise the pleura is smooth and shiny and the lung shows basal congestion. The pleura is ragged and thickened at the left apex but on section of the left apex numerous cavities containing purulent material and measuring up to 0.8 cms. in diameter are seen.

Smear, negative for acid fast bacilli.

There is some fibrosis in the left upper lobe.

The pericardial sac contains 50 cc. of clear yellow fluid. At the apex and right lateral border

of heart, milk spots are seen, measuring 1.5 and 1.0 cms. in diameter respectively.

Heart weighs 320 gms. and other measurements are as follows: right ventricle 0.4 cms., left ventricle 1.6 cms., pulmonary ring 6.8 cms., aortic ring 7.8 cms., tricuspid ring 13 cms. and mitral ring 13 cms. No change is seen in the musculature of the valves show no deformities, although the aortic cusps contain a good deal of calcium. The coronary ostia are patent throughout showing no atheroma although near its origin the anterior descending branch of the left coronary is reduced to one-third.

Abdominal Cavity

There is no free fluid.

The liver, 1060 gms. It is soft, smooth, shiny and shows no abnormality on the cut surface. Gall bladder measures 0.3 cms. in thickness and the bile ducts patent throughout. There are a few loose omental adhesions about the gall bladder.

Spleen, 400 gms. It consists almost entirely of grey translucent nodules varying from 0.2 to 0.5 cms. in diameter. These are poorly circumscribed.

Pancreas weighs 80 gms. and is normally located on serial section.

Oesophagus, stomach, small and large bowels show no varicosities, ulceration or neoplasm. Stomach contents are bile stained and smell of H_2S . The appendix is pelvic.

Both adrenals show brownish central degeneration.

Left kidney weighs 75 gms. and the right 70 gms. Both capsules strip with ease. The surfaces are smooth and show yellowish grey areas varying from 0.2 to 0.5 cms. in diameter—similar to those in the spleen. These are also seen on the cut surface of cortex. The medullae are exceedingly pale and only faintly striate. The calyces, pelvis, ureters and urinary bladder are pale and show no abnormality.

The testes weigh 27 gms. together and are normally stringy.

The abdominal aorta shows some atheroma with ulceration and calcification near its bifurcation.

All the abdominal lymph nodes are enlarged and similar to those in the neck and thorax. Some measure 4 cms. in diameter. They include nodes in the lesser and greater omenta, falciform ligament, mesentery of small bowel, at hilus of spleen and para-aortic and lumbar nodes.

The vertebral and sternal marrow is pale and grey.

Microscopic

Cerebral, the sclerotic basilar artery contains a septic thrombus; the perivascular spaces in the brain substance are widely distended; vessels at joining basal ganglia are surrounded by amyloid bodies.

Thyroid, colloid, quiescent.
 Myocardium, left ventricle, normal.
 Lungs, left apex, scar, lymphosarcoma, broncho-pneumonia, edema; right apex same as left.
 Bronchial nodes and bronchus, lymphosarcoma replacement and infiltration around cartilage.
 Coeliac node, the same.
 Para-aortic (abdominal) node, the same.
 Liver, parenchymal atrophy and moderate portal infiltration with lymphosarcoma.
 Pancreas, gross replacement and perivascular infiltration into remaining tissue by lymphosarcoma.
 Right adrenal, small aggregation of lymphosarcoma in medulla and capsule.
 Kidneys, right, infiltration by lymphosarcoma involving 75% of substance; left, 10% infiltration by lymphosarcoma, mostly perivascular and cortical.
 Testis, subcapsular and some interstitial aggregates of lymphosarcoma, mitoses Sertoli cells, no spermatogenesis.
 Spleen, extensively replaced by lymphosarcoma.
 Sternal marrow, except for a few tiny areas of normoblasts with eosinophils and megakaryocytes there is entire replacement by lymphosarcoma. Spicules of bone remain.

Summary

Lymphosarcoma in an elderly man involving particularly nodes, spleen and bone marrow, and with infiltrations in most of the viscera.

Comments on Some of the Features of Lymphosarcoma

Three main cell types: (1) Lymphocytic; (2) Reticulum cell; (3) Giant follicle lymphoma.

Cases with single rather than multiple foci of origin survive longer e.g. oral cavity, nasopharynx, salivary glands, gastrointestinal tract, skin.

Results of 170 cases with microscopic diagnosis some of which were treated with x-radiation and/or surgery (5-year survival).

Cell Type	Untreated	Treated
Reticulum	15%	23%
Lymphocytic	20%	23%
Giant follicle	36%	45%

Of those with origin in spleen and nodes 7.2% survived 10 years, whereas 25.7% of those with origin elsewhere survived 10 years. (N.Y. State Jour. Med. 47:158:15, January, 1948).

Recent Therapy

(1) Nitrogen Mustard—(Ann. Int. Med. 27:529, October, 1947); almost parallels biological effects

of radiation; highly active NH_3 ion reacts with biologically important groups such as amino and carboxyl; lymphoid tissue and granulocytes are sensitive; sensitivity of a tissue is proportional to proliferative activity.

(1) Mustard—Results in few cases studied are variable—dramatic in some and absent in others.

(2) Radioactive phosphorus (Jour. Lab. and Clin. Med. 31:107-218, February, 1946); infrequent temporary improvement; depression of R.B.C., W.B.C. and platelets is a serious risk.

(3) Pteropterin (Pteroyltriglutamic acid), (New Eng. Jour. Med., 12 August, 1948); may be useful in some neoplastic diseases for relief of pain and general improvement; histological changes seen in some tumors; to date no evidence for its serious consideration in cancer therapy.

Clinical Features of Lymphosarcoma

1. A rare disease, even uncommon as a malignant tumor with its greater incidence at 22 to 55.

2. In contrast to infections, the lymph node swelling progresses without obvious cause or illness.

3. Biopsy of enlarged nodes gives the best diagnosis but it may be in error especially in the early stages of the disease.

4. If the patient recovers after any treatment, surgical or radiological, the pathologic diagnosis should be reviewed. It may have been made on insufficient evidence.

Pharyngeal and cervical types are commonest. Primary gastrointestinal involvement may occur. Either type extends to regional lymph nodes and organs.

Sex incidence, 3 men to 1 woman.

The patient remains in fairly good general health for one to two years with rapid deterioration during the final month from ulceration, infection or pressure effects. Giant follicle lymphoma may survive for five years or more, eventually ending as a true sarcoma.

Etiology

Much investigation has not revealed the etiology. Some animal experiments would appear to implicate transmissible agent. Most indicate a perverted metabolism probably enzymatic—a lack of the growth control.

Present investigation includes effects of nitrogen mustard, radio-active phosphorus, carbonates, para-aminobenzoic acid, tyrosinase, teropterin (pteroyltriglutamic acid) with occasional cases showing temporary improvement. The results from nitrogen mustard are comparable to radiation but the effect on the patient is more severe.

Clinical Session, St. Boniface Hospital*

Chairman, D. S. McEwen, M.D.

Clinical Radiological Conference

Dr. Digby Wheeler

Case No. 1: Lymphoblastoma

Mr. M. D., age 35, No. A5736, admitted to St. Boniface Hospital May 28, 1948.

Entrance Complaints: Substernal and epigastric pain, 16 months. "Gurgling" noise on swallowing, 2 months. "Palpitation," 16 months.

History of Present Illness: The pain is present on arising. It is of a burning nature and extends from the supra-sternal notch to the epigastrium. It is not constant, being present for periods of three or four days at a time with two or three painless days in between. A barium series done fifteen months before this admission was negative. A "gurgling" sound accompanies the swallowing of saliva when he is lying down. Attacks of "palpitations" come on once or twice a day and persist for five or ten minutes each time.

Personal: The patient is a married painter with three children.

Physical Examination: Entirely negative.

X-ray Examination: A barium series revealed no abnormalities of the gastro-intestinal tract. However, fluoroscopy of the chest at the time of this examination revealed a mediastinal mass so P.A. and lateral chest films were made. On these films a homogeneous opacity 15 cms. in diameter and 9 cms. thick was seen in the upper two-thirds of the anterior mediastinum. The left margin was noted to be smoothly curved and the right was angular. About equal portions of the mass are to be seen on either side of the midline. No intrinsic pulsation in the mass was noted on fluoroscopic examination.

Laboratory Examinations: W.R., negative. Gastric analysis, low total acidity. No free hydrochloric acid.

Electrocardiographic Examination: Frequent ectopic beats of right ventricular origin.

Discussion: On the basis of the history alone, three possibilities were considered, namely, peptic ulcer, hiatus hernia and functional dyspepsia. Gastric analysis and barium series excluded the first two. The third was no longer considered after the incidental finding of the mediastinal mass, on routine fluoroscopy of the chest at the time of the barium series. The possibilities now considered were aortic aneurysm, dermoid tumor and lymphoblastoma. The negative W.R. and absence of oesophageal distortion by the mass ruled out an aneurysm. The problem was then reduced

to differentiating a dermoid or congenital cyst from a lymphoma. Aspiration of the mass was suggested as one approach to a solution. However, because the chest had been fluoroscopically negative fifteen months before it was felt that the mass must have developed in the interval. This was more consistent with a lymphoma than a dermoid or cyst. Lymphoma was therefore accepted as the working diagnosis. X-ray therapy was instituted as the indicated treatment. Prompt regression of the mass after a few days treatment confirmed the diagnosis of lymphoblastoma.

Case No. 2: Placenta Praevia

Mrs. J. T., age 38, No. 47-15292, admitted St. Boniface Hospital November 27, 1947.

Entrance Complaint: Painless vaginal bleeding since November 5, 1947.

History of Present Illness: This patient was the seventh month of her ninth pregnancy. Her last normal menstrual period had been on May 10, 1947. Slight vaginal bleeding had been noted on two occasions in June. On the 6th of November slight bleeding was again experienced. Then on November 22nd slight bleeding again appeared and persisted until November 28th, after she had been confined to bed for a day. There was pain associated with the bleeding. She had previously been delivered eight times successfully.

Physical Examination: Pregnant uterus extending to three finger breadths above the umbilicus.

Abdominal and Pelvic Examination: There is a single foetus present. The head is present and is palpable four fingers above the symphysis in the right iliac fossa. The lower uterine segment feels soft and spongy per vagina. No foetal parts palpable per vagina. Placenta praevia diagnosed.

X-ray Examination: A single foetus in abdomen the seventh month of gestation is present. It is in a flexed attitude with the head overlying the right iliac crest. The placental shadow cannot be identified in the fundus. These features are considered evidence of a space occupying mass in the lower uterine segment. A placenta praevia is the likeliest possibility.

Surgery: A classical caesarean section was done and the foetus removed. A central placenta praevia was found firmly attached to the lower uterine segment. A transfusion of 500 cc. whole blood was given. The patient made an uneventful recovery and was discharged ten days post-operatively. The premature infant died on the 8th day.

Discussion: It was emphasized that the diagnosis of placenta praevia can be made on the history and vaginal examination. In this case both were classical. X-ray examination is only a confirmatory procedure at best. X-ray evidence of placenta praevia may be obtained by two methods. Films of the abdomen made using a

*Clinical Session, Manitoba Medical Association Annual Meeting, St. Boniface Hospital, October 19, 1948.

al tissue technic will often show a thickening of the uterine wall in its upper half which represents the normally implanted placenta. If this is not apparent it is presumed that the placenta is attached to the lower uterine segment and may or may not completely cover the os. An interesting feature in this case was the unusually high position of the head, apparently due to the placenta praevia. A distended bladder, ovarian cyst or uterine fibroid might also produce a similar appearance. As a rule it is not customary for the head to be so high in a placenta praevia. The second method of X-ray examination is reserved for the terminal stage of pregnancy when the head has become engaged. Normally under these circumstances the thinned out lower uterine segment occupies no more than one or two centimeters between the foetal cranium and the urinary bladder. When the bladder is distended with about 50 cc. of an opaque media the thickness of the lower uterine segment can therefore be demonstrated. Any broadening of the interval between the head and visualized bladder is considered to indicate the presence of a placenta praevia. This method obviously is not applicable in breech presentations.

Vaginal examination is extremely valuable. The soft boggy lower uterine segment is characteristic. If the head can be felt per vagina there is no placenta praevia. It was emphasized that vaginal or rectal examination when placenta praevia is suspected carries with it the danger of precipitating a severe haemorrhage. The patient should be in hospital and prepared to undergo caesarean section before the examination is done. The examination should not be done in the office or home in these cases.

Case No. 3: Peptic Ulcer

Mr. H. B., age 40, No. A2553, admitted to St. Boniface Hospital March 2, 1948.

Entrance Complaints: Vomiting for three weeks. Upper abdominal pain for 12 years.

History of Present Illness: This patient has suffered constantly from a dull, but occasionally sharp, type of pain in the epigastrium for twelve years. It is worse in January, February and March each year. Alkali powder, milk and eructation give him temporary relief. For the past three weeks he has had attacks of vomiting lasting from one to several days. During the attack he vomits six or seven times a day. The vomitus is often blood streaked.

Past and Family History: Irrelevant, except one brother has "stomach ulcers."

Personal: Happy, married farmer. Very moderate in habits.

Physical Examination: Well built, robust man. Some tenderness elicited on palpating in epigastric region.

X-ray Examination: A deformed duodenal cap was demonstrated by barium series. No obstruction.

Interim Discussion: For eight years this patient had been on so called medical treatment for ulcer without relief. He is said to have come to a surgeon pleading for an operation to cure him. The surgeon regarded him a hypertonic individual but not psychoneurotic.

He considered surgical treatment indicated for the following reasons:

1. The long history without relief on medical treatment;
2. He was relatively young;
3. His gastric acidity was high;
4. He was bleeding slightly;
5. There was no obstruction at the pylorus or duodenum.

The surgeon had no particular preference between gastric resection and vagotomy in this case. He felt that either one would offer a good chance for cure.

The above line of thought was challenged by the Internists. It was first emphasized that "milk and powders" were not adequate medical care. There was some inconclusive speculation about how this man might have got along on proper medical treatment including psychiatric care. The latter has been receiving more attention of late in D.V.A. institutions.

Surgery: An abdominal vagotomy was performed. At the same time the duodenum and stomach were examined. The duodenal cap was found adherent to the pancreas, presumably the result of an old duodenal ulcer.

Progress: One week after operation gastric analysis revealed hydrochloric acid up to 54 and total acidity as high as 78. His pain was not completely relieved. For these reasons it was concluded that the vagotomy was not complete, although two vagus trunks had been severed. He was discharged.

Re-admission, April 5, 1948.

Entrance Complaints: Vomiting for one day. Tarry stools.

X-ray Examination: The duodenal cap was again noted to be deformed. In addition a deep pre-pyloric crater was found. There was no retention.

Laboratory Examination: Stools, Occult blood + + + +; Blood, R.B.C. 4,070,000; Hb 81%. Gastric analysis, Hcl, 40, 53, 65, 76; Total acid, 60, 70, 76, 87; No blood or lactic acid.

Surgery: A remaining main vagus branch was found and severed. The distal third of the stomach except for part of the prepyloric portion which was adherent to the pancreas was removed. An anastomosis with the jejunum was established.

Progress: The second operation was considered successful because the patient has now been quite well for six months. He was so pleased with his result that he has sent his brother in for similar treatment.

Final discussion: Abdominal vagotomy offers an opportunity to see the stomach and duodenum directly, but there is a danger of doing an incomplete operation which is not so great in the trans-thoracic approach.

Case No. 4: Loeffler's Syndrome

Mr. A. L., age 42, No. A3720, admitted to St. Boniface Hospital August 26, 1947.

Entrance Complaint: Referred for investigation re possible pulmonary tuberculosis.

History of Present Illness: The events leading to the present admission were as follows. On August 1, 1947, the patient, who is a rodeo performer, was thrown from a horse and injured his chest. He was admitted to a rural hospital where x-ray examination revealed fractures of three ribs. Shortly after admission there was a sudden onset of chills, fever, cough and dyspnoea. Lobar pneumonia was diagnosed. He was discharged twelve days after admission. Since his discharge he has been producing about five ounces of yellow, odorless, blood-tinged sputum daily. He has had a moderate chronic morning cough for about five years with the production of some mucinous sputum. It was because of the recent blood-tinged sputum that he was referred for investigation regarding tuberculosis. He states that he had lost fifteen pounds during his stay in hospital. There was no history of known Tb contact.

Physical Examination: Temperature, 99; Pulse, 80; Respiration, 24. Teeth, considerable caries. Lungs, dullness in right apex; few creps in the left base. Heart, apex beat not palpable; heart sounds faint; blood pressure 112/65.

Laboratory Examinations: Urinalysis, Occasional pus and red cells. Sputum, Mucopurulent—negative for tubercle bacilli on four occasions. Sedimentation Rate, 37 mm (Westergren). Blood, R.B.C., 4,880,000; Hb 102%; W.B.C. ranged from 10,000 to 30,000 over a week; Eosinophils were about 70% each time. Mantoux, slightly positive to 1:5,000 after two days.

X-ray Examinations: Chest, both roots heavy. Accentuation of broncho-vascular shadows in both bases. Teeth, marked alveolar recession and caries.

Progress: After one week on symptomatic treatment patient was discharged diagnosed Loeffler's Syndrome.

Second Admission, October 15, 1947.

Condition: Dyspnoea, cough and expectoration had increased since discharge. He now has three cups of sputum per day. It is not blood tinged.

Investigation: Blood examination revealed 82% eosinophils. Bronchoscopy, small amount of mucinous secretion was aspirated from right bronchus. The mucosa of the right lower bronchus was oedematous. The aspirated material showed a definite eosinophilia.

Sedimentation rate, 12 mm. (Westergren). Bronchogram, negative.

Progress: After a week in hospital he was discharged with the tentative diagnosis of Loeffler's Syndrome.

Third Admission, April, 1948:

Condition: Patient had worked off and on on light jobs since his last admission. Dyspnoea and cough had been quite severe and expectoration very copious. He returned to hospital because he noted bloody streaks in the sputum the day previously. He had lost 30 pounds and also he aches in the "stomach" and left arm. Tactile fremitus was reduced in the left base posteriorly. A pleural rub was audible in the left 7th interspace posteriorly.

Investigation: Blood, Leucocytosis (27,000) with 70% eosinophilia. Sedimentation rate, 128 mm (Westergren). Haemoglobin, 64%. Sputum, mucopurulent; No tubercle bacilli found.

Chest x-ray, Non-homogeneous density of left lung with definite outline 2 inches by 1 inch in left base. This was considered to represent an acute inflammatory lesion.

Progress: The patient's condition improved slightly and after a week he left hospital again on advice. Again he was tentatively considered Loeffler's Syndrome.

Discussion: Loeffler's Syndrome was diagnosed in this case for three reasons:

1. Periodic recurring acute respiratory episodes with asthmatic symptoms.
2. X-rays showed parenchymal infiltration which resolved after a short time.
3. Eosinophilia.

Two other conditions were considered possible, first, eosinophilic leukemia with pulmonary infiltration and secondly periarteritis nodosa. The latter is a gradually progressive disease with high eosinophilia. It is quite possible that this would turn out to be the correct diagnosis in this case.

Case No. 5: Pyloric Stenosis

Baby S., age 1 month, No. 46-12,925.

Entrance Complaints: Vomiting eight days. Constipation three days.

History of Present Illness: For about a week this male infant has been vomiting during feeding and as long as three hours after. His appetite seemed to be quite good. It has been noted that his stools have been gradually becoming quite hard and for the past three days there have been no bowel movements. The parents also reported some apparent diminution of urinary output re-

evently. The baby was born one month premature and has been on an evaporated milk formula since birth.

Physical Examination: Essentially negative at the time of admission.

Progress: This child was kept under observation for three days. During this time his formula was adjusted several times but the vomiting persisted and was observed to be projectile in nature. Anti-spasmodic medication was given and dehydration was prevented by the use of saline hyperdermolysis. On the third day of observation a firm rounded mass was palpated to the right of the midline near the epigastrium. The signs in this case now definitely pointed to pylorus stenosis. A barium series was done and complete obstruction was found at the pylorus. Four hours after administration of the meal none of it had left the stomach. The clinical diagnosis of pylorus stenosis was thus confirmed. The next day the abdomen was opened and hypertrophy of the pylorus found. A Ramstedt operation was done. Convalescence was somewhat protracted but after two weeks, feedings were well tolerated and a week later the infant was discharged.

Discussion: It was stated that in 90% of cases, of hypertrophic pyloric stenosis becomes apparent within 12 to 15 days of birth. A less common entity, congenital volvulus, presents a somewhat similar clinical picture. X-ray examination will differentiate these two lesions. In the latter the gastric passes into the duodenum while in the former it is completely or at least partially obstructed.

The importance of careful observation in hospital in cases of persistent vomiting was stressed in order to obtain a clear clinical picture of the case.

With regard to the observation of a mass in the abdomen there was some difference of opinion. It was recommended that the most effective method of examination was to palpate the abdomen after a feeding using the finger tips only. If a mass is present it will almost invariably be felt.

X-ray examination is a valuable confirmatory procedure. Complete obstruction or narrowing of the pyloric canal will be observed in these cases.

Medical Cases

Dr. A. Hollenberg

Case No. 1: Bronchogenic Carcinoma

Mr. M. H., merchant, age 58, admitted to St. Boniface Hospital August, 1948.

Entrance Complaint: Pain in chest, fever, since July.

History of Present Illness: The above symptoms became an early in July and he was clinically diagnosed bronchopneumonia. Sulpha drugs were administered in adequate doses but were of no

avail. The patient was then admitted to hospital and put on penicillin therapy. This was ineffectual.

Past Illness: This patient was known to be a mild diabetic for about ten years. Within recent months the disease had become more severe and he had recently been in hospital for balancing. He is now on an insulin regime.

Physical Examination: There were no significant findings.

X-ray Examination: There is an opacity about 1½ inches in diameter adjacent to the upper part of the left root. It was not certain whether this represented an acute inflammatory or malignant lesion. Re-examination in ten days was advised.

Progress: At first this case was thought to be a simple bronchopneumonia. However, he was not responding to the usual treatment. Soon after admission streaks of blood appeared in the sputum and a few days later he became very dyspnoeic. At the same time signs of fluid in the left pleural space were noted. X-ray examination confirmed the latter. Soon it was observed that the liver and spleen were palpable and that ascites and oedema of the legs were present. An increasing degree of dyspnoea developed along with these features.

Although he was not fibrillating, it was suspected that these findings were due to cardiac decompensation probably associated with the long continued fever. Digitalis and diuretics were administered but did not produce the expected diuresis.

Progressive increase in the amount of pleural fluid in the left side and the appearance of fluid on the right side were causing so much respiratory embarrassment that it was necessary to do a thoracentesis. It has since been necessary to repeat this on alternate weeks on either side. The fluid has the characteristics of a transudate. The loss of protein in this manner has been compensated for by a high protein diet.

Repeated x-rays of the chest have shown varying amounts of pleural fluid on each side. The opacity near the left root has not changed. Because of this it is suspected that the underlying pathology is malignant.

Cytological examination of the pleural fluid revealed cells that are regarded as malignant.

Accepting, then, the assumption that this man has a malignant lesion in his chest, what is its nature. Pressure on the inferior vena cava would explain the ascites, pleural fluid, oedema and hepatomegaly. Bronchogenic carcinoma with hilar lymph node involvement or a lymphoblastoma would be the likeliest causes of inferior vena cava pressure. Bronchoscopy was not done because of the distressing dyspnoea. It was conceded, however, that it would have been of considerable

academic interest. It is proposed to give x-ray therapy to the mediastinum as a therapeutic test. If his complaints are quickly relieved by this the diagnosis will be a lymphoma. If there is no relief bronchogenic carcinoma will be the tentative diagnosis. The case is obviously incurable because malignant cells are present in the pleural space indicating considerable spread.

Case No. 2: Landry's Paralysis

Mr. H., age 63, metal worker.

Entrance Complaint: Paralysis of lower limbs, one day.

History of Present Illness: About ten days before admission the patient complained of severe pain in the gluteal, lumbar and thigh muscles. X-ray investigation at that time showed evidence of hypertrophic changes in the spine and pelvis. It was thought that he was suffering from an acute exacerbation of chronic osteoarthritis. He was treated symptomatically. Little change was observed in his condition until the day prior to admission. On that day the patient noted that he was gradually losing the power to stand.

Physical Examination: There is a flaccid paralysis of both legs with loss of the normal reflexes. No sensory changes were demonstrable.

Progress: For about a week the paralysis progressed in an ascending order. However, it stopped short of the facial and respiratory muscles.

Treatment: He was put on general supportive treatment including galvanic stimulation of the affected muscles and passive movement of the joints. Recovery of function occurred in a descending order. There is now some residual muscular atrophy for which he is receiving remedial exercises.

Discussion: The diagnosis made in this case was Landry's ascending paralysis. The acute onset beginning with muscular pain, the ascending order of paralysis and the reverse order of recovery are the characteristic features. Fortunately the paralysis did not involve the respiratory or deglutition muscles in this case. Such involvement carries with it a very grave prognosis. The disease is a virus infection of the spinal cord which chiefly involves the lower motor neurones. It includes a number of related syndromes, one of which Guillain-Barre's syndrome has lately received considerable attention.

Surgical Cases

Dr. R. O. Burrell

Case No. 1: Bilateral Abductor Paralysis Brian King Operation

Mrs. W., age 50.

Entrance Complaint: Progressive dyspnoea on exertion, 15 years.

History of Present Illness: A thyroidectomy had been done on this patient in 1933. Subsequently to this she had loss of voice for six months. The voice then gradually began to return. During recovery of her voice she noted the onset of shortness of breath. This has been gradually progressive. At present it is so severe that she can scarcely exert any physical effort.

Laryngoscopic Examination: Bilateral abductor paralysis is present.

Surgery: Brian King operation.

Discussion: In this case the bilateral abductor paralysis was a complication of the thyroidectomy. Lack of abduction results in the vocal cords falling together, thus restricting the laryngeal airway. This accounts for the marked dyspnoea on exertion. Acute upper respiratory infections are particularly dangerous in these cases because inflammatory oedema may cause complete occlusion of the already narrowed airway.

The only cure is the Brian King operation, in which one of the arytenoid cartilages is displaced laterally and with it one of the vocal cords. This improves the airway but considerably impairs the voice.

Case No. 2: Post Thrombophlebitic Ulcers
Female, age 64.

Entrance Complaint: Swollen, painful left leg, 23 years.

History of Present Illness: Since the delivery of this patient's 12th and last child at the age of 41, her left leg has gradually become swollen and painful. The veins of this leg are dilated and the soft tissues in the lower half are indurated. The skin is discolored and some superficial ulceration is present. The right leg is quite normal and shows no varicosities. Her left leg has been treated by injection of the varicosities and high saphenectomy.

Discussion: See next case.

Case No. 3

Male, age 65.

Entrance Complaint: Swollen, ulcerated right leg, six years.

History of Present Illness: In 1942 this patient fractured his right leg. It was treated by immobilization in plaster. Since then this leg has become swollen and oedematous. The skin has become ulcerated throughout the lower half of the leg. The veins of the left leg are moderately dilated. The veins of the right leg are intensely dilated.

Discussion: Both these cases were originally diagnosed as varicose veins with ulceration. Dr. Burrell is of the opinion that this was incorrect and they are really post thrombophlebitic ulcers. This opinion is based on two main features:

1. These lesions are unilateral. Varicose veins are bilateral.

2. The disease came on late in life. Varicose veins are hereditary and are apparent fairly early in life.

The underlying pathology is impaired tissue nutrition following deep thrombophlebitis with its associated vaso-spasm. Pregnancy and immobilization of the lower limbs predispose to the development of deep thrombophlebitis.

Post thrombophlebitic ulceration is often mistakenly treated by injection on the assumption that it is due to varicose veins. This actually

aggravates the condition as it increases the vaso-spasm.

The first treatment measures are bed rest and elevation of the limb. Often the ulcers will heal on this treatment quite readily. Elastic compression should then be applied. Prolonged standing must be avoided and at every opportunity the legs should be elevated. Anti-spasmodic drugs are often helpful. In some cases lumbar sympathectomy must be resorted to when the above conservative measures fail.

Hospital Clinical Reports

Clinico-Pathological Conference No. 35

J. G. Pincock, M.D.,

Medical Department, Deer Lodge Hospital

Mr. G. M., born April 1, 1879.

Lymphatic Leukemia

This veteran of World War I was admitted to hospital March 16, 1948, complaining of general fatigue and weakness beginning September, 1945. He became so tired after walking 100 yards that he felt he would collapse. He slept more than formerly and began to take naps during the day in spite of having a good night's sleep. He began to have ringing in his ears and "puffing like an engine" in his head, on even moderate exertion. In January, 1946, two months before admission he noticed a sensation of pins and needles in his feet. Examination revealed an elderly, moderately emaciated man who appeared older than his stated age of 67 years. His skin was very pale. The sclera were slightly icteric. His tongue was neither smooth nor furred and was considered normal. Small, soft, movable lymph nodes were present in the posterior triangle on both sides of the neck. There were no supraclavicular lymph nodes palpable. Chest movement was moderately restricted. The lungs were resonant except in both bases where there was dullness. Breath sounds could not be heard in the bases but occasional rhonchi were heard just above the silent area. The remainder of the lungs was clear. The apex beat was palpable in the 6th intercostal space four inches from the mid line. The rate was 100 and was regular. There was a soft systolic murmur

at the apex but other areas were normal. Blood pressure was 100/55. Slightly distended superficial epigastric veins were present on the abdomen. There was definite loss of elasticity of the skin. The liver was palpable three fingers below the costal margin and the spleen was palpable three fingers below the umbilicus. The spleen was hard in consistency and the margins were not well defined. There were no other palpable masses in the abdomen. Inguinal as well as epitroclear lymph nodes were enlarged and palpable. There was marked wasting of all limbs. Reflexes were normal. Sensation was also normal.

Blood counts revealed a profound anemia. Hb 27%; RBC 1,270,000; C.I. 1.09; WBC 8,250; Differential Count: Myelocytes 1%; Neutrophils 13%; Lymphocytes 86%; Platelets 30,240; Reticulocyte count 1%; Red Cell Fragility: Hemolysis began 0.45% NaCl. Complete 0.25% NaCl. Sternal Marrow Count: Myelocytes 4%; Stab cells 6%; Neutrophils 6%; Lymphs 67%; Erythroblasts 7%; Normoblasts 10%. The marrow appeared hypocellular.

Icterus Index was 16 units; stools were negative for occult blood. Gastric Analysis showed absence of Free HCl. Urine was cloudy, acid, 1.013, contained a moderate amount of albumin, but no sugar. Micro was negative. The Icterus was as follows: 21/3/46 - 28 units; 26/3/46 - 10 units and 11/4/46 - 29 units.

He was given daily blood transfusions over a period of 6 weeks. The following blood counts were done during his stay in hospital:

Table I

	Hgb	C.I.	RBC	WBC	Differential
20/3/46	20%	1.24		8,050	
26/3/46	38%		1,900,000		
30/3/46	40%		1,900,000		
1/4/46	42%		2,040,000		
4/4/46	31%	1.03	1,540,000	5,500	N .20%; E .2%; B .1%; L .70%; M .1%
8/4/46	37%		1,810,000	5,000	
24/4/46	27%		1,120,000		
10/5/46	37%	1.08	1,700,000	5,000	
25/5/46	30%			6,300	N .43%; L .47%; E .7%; B .1%; M .2%
11/6/46	23%				
17/6/46	29%	1.3	1,140,000	3,600	N .52%; B .1%; L .37%; M .2%; Stabs 7%
6/7/46	22%				
15/7/46	24%				

A course of x-ray therapy was given between March 29th and April 5th but this did not produce any noticeable effect on the size of the spleen.

Urine was examined almost every day and was usually cloudy, S.G. ranged from 1.008 - 1.016. A trace of albumin was found on several occasions and once a moderate amount was recorded. Sugar was never present in the urine. The sediment contained amorphous debris and often pus cells. When present there were usually only 8 - 10/HPF but occasionally 50 - 60/HPF were recorded.

He remained in hospital several weeks without any significant change in his condition but on May 10th, 1946, it was noted that he had edema of the legs, sacrum and scrotum. He was cheerful and said he felt well.

On June 17th, 1946, the legs were still swollen and it was thought that there was some ascites although the size of the spleen made it difficult to be sure. The patient insisted that he felt fine but it was apparent that he had deteriorated greatly since admission.

On July 10th the edema of the extremities was more marked. There was no doubt now about the presence of ascites and the dullness in the lung bases had increased. It was apparent that he was entering a terminal phase and he continued to go downhill and died on July 17th, 1946.

Discussion

Our evidence for diagnosis here is confined mainly to evidence of enlarged lymph glands, spleen and liver and also a marked anemia. Analyzing these various factors one is impressed by several things:

1. Generalized enlargement of lymphatic tissues;
2. A severe and progressive normocytic anemia;
3. An extremely low platelet count;
4. An unusual relative lymphocytosis in an otherwise normal W.B.C.

Close observation reveals evidence of renal damage with albuminuria repeated. Some early cardiac enlargement and possibly early failure and slight jaundice.

One must try to fit into this picture of apparently widespread disease, the facts as we are given them. Analyzing the blood picture first, we notice the following:

1. There is a diminution in R.B.C. and Hgb progressive throughout the disease and in spite of transfusion;
2. The Red cell picture is essentially normochromic and normocytic in type and fragility is normal;
3. Erythropoiesis is not stimulated markedly and in fact, appears rather depressed;
4. There is a marked diminution in platelets;

5. The W.B. Cells have some rather peculiar characteristics as we follow them throughout the course of the disease.

Table II

We note:	W.B.C.	Lymph %	Total	Neutros. %
March 16	8,250	86	7,095	13
April 4	5,500	70	3,950	20
May 25	6,300	47	3,000	43
June 17	3,600	37	1,312	59

This gives us a picture which is clearer than just considering the per cent of each type. It notes that X-ray was given March 29 - April 5 but had no effect on the spleen. However, there is a sharp drop in total W.B.C. and in total lymphocytes while Neutros. remain the same. This relative portion was reduced further in the next 6 weeks and we find the lymphs have dropped 1,000. The Neutros have risen 1,500. The final count on June 17—3 weeks later shows a marked drop in total W.B.C. and lymphs but relatively constant neutrophils. Then we see that the main variation in W.B.C. has been in the lymphocyte group. This, I think, gives us a clue to the understanding of the disease process with which we are dealing.

Let us then proceed to consider the further symptoms and see how a positive picture can be built up around these known facts.

1. Enlarged liver and spleen.

This may be due to several diseases: 1, Lymphomas; 2, Leukemias; 3, Hodgkins; 4, Malignant liver not usually enlarged; 5, Banti's disease; 6, Mononucleosis; 7, Pernicious Anemia; 8, Thrombopenic purpura; 9, Sickle Cell Anemia; 10, Primary Granulopenia; 11, Brucella Infection; 12, Typhoid Fever; 13, Subacute Bacterial Endocarditis; 14, Parasitic Diseases; 15, Amyloid Disease; 16, Lipoid Diseases; 17, Thrombosis.

This lists a few of the major causes of this type of finding. Many of these are ruled out on treatment and present examination very quickly. The cause of the anemia, the very marked enlargement of spleen and also the course of the disease. With the many mentioned, Hodgkins, Leukemia, Agnathocytosis, Aplastic Anemia and Thrombopenic purpura certainly must be considered. Fairly obviously here we are dealing with some disease which produces a gross disturbance of the blood picture. Let us consider then first the Anemias, the Lymphomas including Hodgkins disease and the Leukemias.

1. Pernicious Anemia—This seems ruled out almost immediately because of the huge spleen, the lack of megaloblasts and the relatively normal Color Index.

2. Aplastic Anemia—This is a real possibility and could mimic many parts of our present picture. The spleen and liver and general lymphatic

argement are, however, certainly not likely if this were the problem.

3. Toxic Anemia or Chemical Anemias are ruled out more or less on the same basis as the foregoing.

4. Neutropenia or Agranulocytosis is worthy of mentioning. The lack of Neutrophils both in per cent and total amount has been noted. However, Bone Marrow shows evidence of myeloid metaplasia though this is reduced. Also the presence of the high per cent of lymphocytes is a true rise and not a relative one as is shown. There would seem to be a depression of myeloid metaplasia but this disease would certainly not account for all of the present symptoms as we see them.

5. Lymphomas—produce as a rule, groups of enlarged glands with matting and coalescence. There is also a replacement of marrow if anemia develops. The general enlargement of abdominal and thoracic glands usually seen is missing. The peculiar blood picture is not explained.

6. Tuberculosis and other granulomas should be noted in passing. There is little evidence to support this diagnosis and the picture is really that of a malignancy.

7. Malignancy—A gastric Carcinoma can produce a picture resembling this with metastasis to liver, spleen, bone marrow, etc. However, again the generalized lymphadenopathy and the anemia without evidence of replacement or megaloblastic change rather suggests it is unlikely. No free hydrochloric acid is found but there is no gastric symptoms nor blood in the stools.

8. Leukemias—We must now consider the Leukemias. These diseases produce a picture of high leukocyte count, generalized enlargement of myeloid and lymphoid elements depending on the type, profound anemia thrombopenia, enlarged liver and spleen, sometimes renal involvement and notoriously a downhill course to end in death.

This picture fits closely with one exception—the Leucocytosis. However, certain chronic and acute forms are characterized by normal or subnormal W.B.C., the so-called Aleukemic variety. Usually there are evidences of immature cells in bone marrow or blood and these are not in evidence here. However, in review this certainly appears the most likely diagnosis. As regards sub type the presence of high lymphocyte count in the bone marrow with other elements reduced suggests the lymphatic variety.

The question arises immediately "Can you have Leukemia without immature cell forms?" I believe Kracke, Wintrobe and others have described cases of this type and worked out a hypothesis to explain the reaction based upon the presence of germinal centres with inflammatory or lymphoid collections around these.

The next question is one of the reduction in lymphocytes with impending death. This is well recognized as a significant change frequently seen in lymphatic variety of this disease shortly before death—Kracke points to it as a grave prognostic sign—This is borne out by the death of patient two days after the last and lowest count.

Although the picture is not typical and the diagnosis can be criticized on the points mentioned, I feel this is the most likely cause of the process. A biopsy of a gland would have clinched the diagnosis or at least been of material value. A word might be said about Gaucher's disease and Niemann-Pick's disease. The absence of the specific cell types and full picture of this disease and the rarity of these two rules against them. They do, however, produce hepato-splenomegaly, lymphoid hyperplasia and marked anemia as a part of the syndrome. My final diagnosis is therefore: Chronic Lymphatic Leukemia in terminal phase.

Past History

Enlisted Jan. 4, 1915, at the age of 36 years. On July 13, 1916, he received a superficial wound of the left side of the face. This healed up promptly but he received six months treatment for "shell shock." On discharge from Army on April 10, 1919, he was well.

On Oct. 9th, 1924, he complained of continued dull pain in the left side as well as left headache and dizziness following stooping. He had a slight pigeon breast deformity of the chest. The breath sounds were faint but not otherwise normal. Blood pressure was 130/80. There were no murmurs. Pulse was 98, sitting and 122, standing. Abdomen was normal, liver and spleen were not palpable. X-ray showed heart to be of "dropped variety." He was considered to have Disordered Action of the Heart (D.A.H.).

On July 26, 1929, he had similar complaints. He weighed 126 pounds. Heart and lungs were normal. BP 120/80. Liver and spleen were not palpable. Lymph nodes of the neck and axilla were enlarged but were discrete. Blood count was Hb 70%; RBC 4,300,000; WBC 9,400; Morphology of the cells was reported normal. BMR was minus 4%.

On Sept. 2nd, 1931, the complaints were essentially unchanged and the patient said: "It is my nerves you know." Enlarged lymph nodes were present in the neck, axilla, groin and epitrochlear regions. A mass in the left upper abdomen was thought to be enlarged lymph nodes. Blood Count - RBC 4,900,000; WBC 50,000; Differential: Neut 22%; Eos 2%; Baso 1%; Lymphoblast 20%; Lymphs 25%; Mono 30%.

On Oct. 9th, 1931, Barium series revealed that the spleen was enlarged but there was still doubt about it clinically. WBC 59,000; Myelocytes 70%; Neutros 55% Lymphs 20%.

On Oct. 29th, 1931, the spleen was now definitely palpable. HB 80%; RBC 4.2; WBC 28,000.

On Feb. 9th, 1932, lymph nodes were palpable as before. There was still some doubt clinically about the enlargement of the spleen. Hgb 65%; RBC 4.0; WBC 72,000.

On Aug. 16, 1937, he complained of left headache and dull pain in the left lower chest. He also had weakness and dizziness.

The lymph nodes were enlarged as before and the spleen was now palpable at the umbilicus. WBC 142,800.

On Feb. 12, 1940, he complained of weakness and was seen to be emaciated. There were no definitely enlarged lymph nodes. Hb 60%; RBC 3,000,000; WBC 13,000.

Autopsy Findings

General Description—The body is that of a man 5 feet 6 inches in length greatly emaciated, and appearing about stated age of 69 years. There is an icteric tinge to the skin. A few small soft lymph nodes are present in the posterior triangle of the neck and in the inguinal region.

Thoracic Cavity

The left pleural space contains 200 cc. of clear dark yellow fluid, giving a positive test for bile. There are a few adhesions at the apex but the rest of the lung is free. The anterior surface of the lung is soft and crepitant but posterior part is dark and firm and edematous. Pus can be expressed from the bronchi of the lower lobe. The lung weighs 615 grams.

The right pleural space contains 350 cc. of the same fluid. The lung weighs 1005 gms. and the appearance is the same as the left except that there is more edema.

The pericardial cavity contains 100 cc. of fluid but the heart is not abnormal in appearance.

Abdominal Cavity

The entire gastro-intestinal tract appears normal.

The liver weighs 2381 gms. The capsule is smooth and the parenchyma is soft and dark red. Numerous dark areas 1 mm. in diameter are scattered throughout the liver.

The spleen weighs 1140 gms. The capsule is smooth except for a few areas of perisplenitis. The substance is dark and soft and red and there is some bleeding from the cut surface which is speckled by dark areas up to 1 cm. in diameter.

The kidneys are of normal size each weighs 150 gms. The capsule of the right is adherent and strips poorly but the left strips easily. There is minimal lobulation. There are numerous depressed areas in the kidney. The blood vessels are prominent. The para aortic, hypogastric, mediastinal, as well as those at the lesser curvature of the stomach and in the pedicle of the spleen,

are enlarged. The color of the nodes varies, some are dark red, others are pale white. All are soft and homogenous. The capsule appears to be intact in all.

Microscopic Findings

Lung—The section shows edema and extensive bronchopneumonia infiltration with polymorphonuclear cells. Some bronchioles are filled with pus. The process is more marked on the right.

Liver—There is marked increase of brown melanin pigment deposit. There are numerous scattered small irregular areas of lymphocytes usually noted in the vicinity of small veins.

Spleen—Section shows the Malpighian area very poorly defined with lymphocyte tissue disseminated through the section. There are hemorrhagic areas. There is a vein into the lumen of which there is a growth of dense lymphoid tissue with hyperchromatic cells. This is covered by a single layer of endothelium.

Kidney—Section shows areas in which practically all glomeruli are obliterated by fibrosis. Tubules are also replaced by fibrosis and others are dilated and filled with pink material. There are areas of round cell infiltration.

Thoracic Vertebrae—Section shows a preponderance of lymphocytic cells in the marrow with areas of lymphocytes only. There is also lymphocytic infiltration of the periosteum.

Lymph Nodes—Sections of thoracic and abdominal lymph nodes show a complete absence of germinal centres. There is a sameness to the tissue everywhere. There are a few eosinophilic cells present.

Conclusion

Lymphatic Leukemia, Bilateral Bronchopneumonia, Pulmonary Edema, Nephrosclerosis.

Leukemia

History—Although descriptions of what is now recognized to be leukemia have been recorded from the time of Hippocrates onward, the earliest microscopic observations were made by Donnan (1839) in Paris. Hughes Bennett and Rudolf Virchow (1845) working independently first recognized it as a clinical entity at autopsy. Fullmer (1846) recognized the first case during life. The disease was called leukocythemia by Bennett and leukemia by Virchow who recognized that the cells were not due to suppuration. Acute leukemia was recorded by Friedreich (1857). Naegeli (1900) identified the myeloblast and emphasized its importance in leukemic states. Schilling (1913) described monocytic leukemia. Recently leukemia without an increase in the white cell count (aleukemic or subleukemic forms) have been recognized.

Chronic Lymphatic Leukemia

This is a disease of older people. It probably does not occur in childhood. It is relatively benign.

The onset is generally insidious. Many cases are discovered during routine blood examination when the patient has no suggestive symptoms. Not infrequently an unusual blood picture is found in a middle aged person and over a period of several years the picture of chronic lymphatic leukemia emerges. In the early stages the physical examination may be normal without enlargement of lymph nodes or spleen.

In others the presenting symptoms are, enlargement of lymph nodes, enlargement of the abdomen, moderate malaise and weakness.

It has been our impression that enlargement of lymph nodes bears an inverse ratio to the age of the patient, and the duration of the disease, the younger the patient the more prominent is lymph node enlargement and the shorter the course. The converse of this also seems to be true, the older the patient and the less prominent the lymph node enlargement the more prolonged the course. Splenic enlargement may be about the only clinical abnormality found, and these cases seem to run a comparatively long course.

The usual case is characterized clinically by general enlargement of the lymphatic glands and splenomegaly. The splenomegaly is usually not as marked as in myelogenous leukemia and may be comparatively slight. Tenderness over the sternum, though less frequent than in other forms of leukemia is sometimes present. The disease, which is invariably progressive is said to have an average duration of 3½ years, in young patients death may ensue in less than a year and older patients may live 5 - 15 or more years. We have had the opportunity to follow several cases who have been able to carry on for many years. This man lived 15 years after his disease was recognized.

The diagnosis is usually obvious from the blood, the necessity for the examination of which is suggested by the glandular enlargement and the splenomegaly. The leucocytosis is usually between 50,000 and 200,000; but sometimes it is scarcely raised above the upper limit of normal and rarely it may exceed 1 million per cmm.

The stained film is striking, for with high counts as many as 99% of the cells may be lymphocytes. Usually there are all normal forms, the majority being small lymphocytes, but occasionally large lymphocytes predominate and sometimes there is a small proportion of lymphoblasts. In the films there are often large numbers of curious purple smudges which are partially disintegrated lymphocytes, similar smudges due to disintegrating myeloblasts are often seen in acute leukemia.

As the disease progresses and the bone marrow and other organs become infiltrated evidence of bone marrow depression occurs. Anemia, granulocytopenia and thrombocytopenia appear. The lymphoid structures eventually become exhausted and the lymphocyte count drops.

If the preceding history and findings are not known the terminal picture can be puzzling. One may be confronted with a severe depression of the bone marrow as illustrated by anemia, granulocytopenia and thrombocytopenia but a total white count within normal limits due to an absolute lymphocytosis in a patient who has a very large spleen and only small peripheral lymph nodes.

As the disease does tend to be rather benign, it is best to avoid hastening the end by too vigorous treatment. Radiation should be directed to the lymph nodes if they are producing symptoms by reason of their size, or to the bone marrow if there is anemia due to displacement of the red cell elements by lymphocytes. The total white count itself is not important and does not require treatment.

The following cases may emphasize some of the features of this disease.

Case 1—Male, age 65 years. Was admitted because of fever, pain and swelling in the left arm. A subcutaneous abscess was drained. The white cell count was 80,000 of which 98% were lymphocytes. The abscess healed and he returned to his farm. He returned 18 months after drainage of the abscess at which time he felt well and was working every day. The spleen was now palpable 3 fingers below the costal margin but there was still no lymphadenopathy. Hb 96%; WBC 65,000; Lymphocytes 97%. He was not given treatment.

Case 2—Male, age 35. Noticed general enlargement of lymph nodes and enlargement of the abdomen, 2 years before reporting. Hb 65%; WBC 400,000; Lymphocytes 98%.

The spleen was huge and gave him much discomfort. The lymph nodes have been irradiated but are enlarging again. The general course has been downward. He is able to be up and about but is unable to work. Palliative irradiation of the spleen is contemplated.

Case 3—Male, age 74. Has been known to have chronic lymphatic leukemia for 8 years. The spleen is very large but there is minimal enlargement of the lymph nodes. He is able to get about but is occasionally incapacitated by gout.

Case 4—Male, age 59. Admitted because of weakness, fever and cough and was found to have lobar pneumonia. He also had an enlarged spleen with a WBC 58,000; lymphocytes 75%. During the course of the illness he developed empyema and died. At post mortem the diagnosis of lobar pneumonia with empyema and chronic leukemia

were established. The duration of the leukemia is unknown.

Case 5—Male, age 71. Complained of urinary symptoms and on examination was found to have benign prostatic hypertrophy. He was admitted for a transurethral resection and routine pre-operative examination revealed an enlarged spleen and a blood picture of chronic lymphatic leukemia. He was followed over a three-year period post operatively during which time he gradually failed. He died at age 74 years of bronchopneumonia.

Pathological Findings in Chronic Lymphatic Leukemia

The spleen is moderately enlarged but may be greatly so. It is diffusely infiltrated with lymphoid cells producing a firm consistency with a tense capsule. The cut surface is light red and meaty in appearance and cannot be distinguished from the chronic myelogenous type by naked eye examination. On microscopic examination there is extreme hyperplasia of the lymph follicles, with replacement of the pulp by lymphocytes. Some of the lymphoid cells may resemble immature lymphocytes found in the blood.

The lymph nodes all over the body are enlarged. The greatest enlargement is seen in the abdominal nodes which may be 2 - 3 cm. in diameter. There

may be fusion of adjacent nodes where the enlargement is extreme. The normal structure is entirely replaced by lymphocytes with obliteration of the sinuses and the microscopic picture cannot be distinguished from that of lymphosarcoma. There may be extension of the infiltration beyond the capsule of the node.

The liver is moderately or markedly enlarged and grossly it cannot be distinguished from myelogenous leukemia. Small nodules can be seen on the cut surface and these represent collections of lymphocytes in the portal tracts. In myelogenous leukemia the infiltration is largely in the sinusoids.

The kidney is pale and infiltrated with lymphocytes.

The skin may contain diffuse infiltration with lymphocytes or there may be collected together definite nodules.

The gastro intestinal tract, the heart and lungs may occasionally show infiltration with lymphocytes.

References

- Bell: Textbook of Pathology, 4th ed., 1941.
Karsner: Human Pathology, 6th ed., 1942.
French: Differential Diagnosis of Main Symptoms, 6th ed., 1945.
Wintrobe: Clinical Hematology, 2nd ed., 1946.
Boyd: Textbook of Pathology, 5th ed., 1947.
Cecil: Textbook of Medicine, 7th ed., 1947.

LABORATORY NOTES

Reported by Miriam Wiseman, B.Sc., M.T. (A.S.C.P.), R.T. (Can.)

Abstract

Bone Marrow Technique

(Lecture given by Dr. Emil Schleicher at the Centre for Continuation Studies, University of Minnesota).

On June 11th, 1948, Dr. Emil Schleicher presented a seminar on Bone Marrow Technique and Morphology. The lantern slides he used to illustrate his lecture showed such flawless technique that for a while the oohs and aahs drowned out the voice of the speaker. Dr. Schleicher gave full credit to the excellent work of his hematology technologists for their mastery in preparing and staining blood smears so that they were as easy to read as the diagrammatic plates seen in textbooks.

Dr. Schleicher collects his bone marrow samples in paraffin lined glass vials with rubber stoppers. The paraffin must be only a thin transparent film. Heparin, derived from dog liver, is used as an anti-coagulant. It is essential not to expose the bone marrow to the heparin for more than 15 minutes. Place 2-5 ccs in the vial and examine over an

illumination box for macroscopic particles. Normal range of particles is $\frac{1}{4}$ -4 mm. Anything below indicates hypoplasia and above, hyperplasia. With a wooden applicator pick up a particle and roll it slightly across a slide—do not squash it but rather draw it along on the slide.

Concentrate marrow in Wintrobe tube, the first marrow being the layer above the red cells (above these are the platelets, plasma and fat). Make at least five smears and stain with Wright's stain. Use 0.5 cc stain for 2 minutes. Add 2 cc distilled water and use an applicator at the side of the slide to give a rhythm to the solution. Do not blow on the slide to mix. Stain thus from 5-8 minutes. Rinse off well with a sharp stream of water. Decolorize for 3 seconds with Schleicher's decolorizer (5.0 cc methyl alcohol, 0.5 cc acetone, 100 cc H_2O).

This step is very important for good differentiation. Rinse well and check under the microscope while still wet for proper depth of stain. The turn slide with thick side down and allow to dry.

Wash marrow particles in a mixture of formaldehyde (10 ccs) and saline (90 ccs). Pour remains of marrow into this, draw off clear fluid

*These notes are for the benefit of the laboratory technicians especially but will also be found useful by the doctors.
—Editor.

and wash again, carefully making sure not to lose any of the marrow. When particles float add a little 75% alcohol and let particles sink. Carry on with dehydration. When ready to put in the paraffin leave enough acetone to cover. Never add xylol. Add fresh 58° paraffin. Let paraffin block set at room temperature to prevent bubbles. In making sections cut slowly on a cooled block. Clean knife edge with xylol but never leave any xylol on knife. Make at least 5 slides with 4 or more sections on each. Stain with hematoxylin and eosin. Never superimpose Giemsa and Wright's or any two stains.

Transition of the dye homologues shows up with proper stain. Even in peripheral blood, grooving will show up in lymphocytes characteristic of bone marrow tumor. Malignant cells stain so deeply that when all other cells are decolorized the metastatic cells remain characteristically deeply stained.

(Homologue—One of a series of compounds each of which is formed from the one before it by the addition of a constant element).

Abstract

Tests in Haemorrhagic Diseases

(Dr. Armand J. Quick, at the Centre for Continuation Studies, University of Minnesota).

On June 10th, 1948, Dr. Armand J. Quick presented a seminar on haemorrhagic diseases discussing (a) technical aspects and (b) clinical applications.

In testing for blood coagulation time Dr. Quick emphasized the worthlessness of using the capillary method. When tissues are punctured and a drop of blood collected there is also a certain amount of tissue fluid, containing thromboplastin, mixed with the blood. This gives a shortened coagulation time.

For an accurate test the venous blood should be taken with care so that not a drop of tissue fluid is drawn up. The blood should be allowed to clot at 37°C and not at that indefinite temperature known as room temperature. The size of the test tube is also a variable factor in clotting time. For uniformity the small Wassermann tube (13 x 100 mm) is used. When timing, the test tube should be gently tilted every 30 seconds.

Discussing the conditions in which coagulation time is prolonged Dr. Quick pointed out that: (1) Not always is prolonged coagulation time found in haemophilia. Normal values are no guarantee that patients will not bleed.

Bleeding and clotting times should be eliminated from routine tests before tonsillectomy.

Instead physicians should inquire if patient bleeds easily or if there is a family history of bleeding. "Go back to your doctors," he said, "and tell them to stop this practice." The two important reasons he gave were (a) not every bleeder shows abnormal results and (b) tests are not accurate enough.

(2) In hypoprothrombinemia clotting time extension does not follow reduction in prothrombin. When coaguability of blood is reduced prothrombin time is extended but coagulation time rises only slightly in proportion. Clotting time in this condition may not give a true picture—e.g. in dicumerol treatment.

When doing bleeding time conditions should be standardized. The best site for puncture is the earlobe. The depth of cut should be uniform too. Dr. Quick recommends the use of the automatic lancet, making a 2 mm cut. Under these conditions a bleeding time of over 3 minutes is positive. Bleeding time is used in the prognosis of purpura—i.e. bleeding time may become normal before an increase in platelet count.

Dr. Quick gives the only exact method of doing a platelet count as the direct method. Sodium citrate (3.8%) is used as the diluting fluid, using a red cell pipette and the counting chamber as for a red cell count. Dr. Quick also described a method for platelet count in blood plasma which gives almost twice the count of whole blood. However, blood must be collected with syringes coated with a specially prepared oil and the method is not recommended for general practice.

Another test involving blood platelets is the clot retraction time, which is a measure of platelets in whole blood. When the number of platelets is greatly reduced we get no retraction. Occasionally defective platelets do not act normally. This test, too, must be done at 37° C. and about 2 ccs of blood should be used in a 13 x 100 mm tube. Normal clot retraction time takes from 30 minutes to 1 hour.

Other tests Dr. Quick touched on briefly were:

(a) Tourniquet test—in which venous return is blocked but not arterial flow. This tells us about vascular permeability but is difficult to interpret.

(b) Calcium estimation—Bleeding conditions are not due to a deficiency of calcium. If calcium level drops we get tetany but coaguability is not involved.

(c) Fibrinogen estimation—only in very rare cases is there a deficiency.

Discussing prothrombin time estimations Dr. Quick revealed that after many experiments none of the variations of his original method have proven to be any more efficient. He especially dislikes the stipvin method and believes it is extremely dangerous in dicumerol treatment.

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Medico-Historical

J. C. Hossack, M.D.

Sir Astley Paston Cooper

This eminent practitioner and excellent man was the fourth son of the rector of Great Yarmouth, in Norfolk; and was born at Brooke, in that county, August 23, 1763, and died on February 12th, 1841. His mother sprung from the ancient family of the Pastons, and was the authoress of a novel, entitled, *The Exemplary Mother*. He was chiefly educated by his father, a sound scholar. An accidental circumstance is said to have influenced his future career: when a boy, he saw a lad fall from a cart, and tear his thigh in such a manner as to wound the femoral artery. Young Cooper immediately took his handkerchief, and applied it round the thigh so tightly, as to control the bleeding until further assistance could be procured. At the age of fifteen, he was placed with a surgeon and apothecary at Yarmouth; he next came to London, and was apprenticed to his uncle, one of the surgeons of Guy's Hospital; but, in a few months, was transferred, by his own desire, to Mr. Cline, the eminent surgeon of St. Thomas's Hospital. Here his zeal and application were incessant; and he laid the foundation of his fame and fortune by giving a course of lectures on the principles and practice of surgery, which had previously only formed part of the anatomical course. His class of students rose to 400, by far the largest number ever known in London. He made no attempt at oratory, but was plain and practical in his details, and very successful in his illustrations; while he carefully avoided the introduction of controversial subjects connected with physiological science. In 1792 he visited Paris and made himself master of the theory and practice of French surgery. In the same year, he commenced practice in London. When at its zenith, his annual receipt of fees far exceeded that of any other member of the profession: in one year he received £21,000; and for many years after, his annual receipt was £15,000 and upwards. His success in practice, it is supposed, consisted chiefly in his knowing how and when to operate; yet, on an important occasion, his courage had nearly forsaken him. In 1821, George the Fourth having a small tumor in the scalp, an operation for its removal was resolved upon and Cooper was selected to perform it. On the day appointed, he waited upon His Majesty. Lord Liverpool and other cabinet ministers occupied a room adjoining that in which the King was. A short time before the operation was commenced, Cooper was observed to be pale and nervous, when Lord Liverpool, taking hold of his hand, said, "You ought to recollect that this operation either makes

or ruins you. Courage, Cooper!—and he was so impressed with this timely rebuke that every appearance of anxiety vanished from his countenance, and he performed the operation with his wonted coolness and dexterity. In the course of a few months after this, he received from the King a baronetcy, with remainder, in default of male issue, to his nephew, Astley Paston Cooper, who in due time succeeded to the title.

Sir Astley Cooper had long retired from practice, when he died, February 12, 1841, in his 73rd year, bequeathing a large fortune. His extensive practice had small beginnings: in the first year his income was but £5 5s.; the second £26; the third, £64; the fourth, £96; the fifth, £100; the sixth, £200; the seventh, £400; the eighth, £610. He received some very large fees, among which was that of a thousand guineas thrown at him in his night-cap by a patient whom he had cut for the stone; an anecdote which he told with no small degree of animation, on retiring from a patient upon whom he had just performed the same operation, and who had likewise, in his agony, flung his cap at the surgeon, but without the cheque which gave so much force to the original incident. Probably, no surgeon of ancient or modern times enjoyed a greater share of reputation during his life than fell to the lot of Sir Astley. The old and new world alike rung with his fame. On one occasion, his signature was received as a passport among the mountains of Biscay by the wild followers of Don Carlos. A young English surgeon, seeking for employment, was carried as a prisoner before Zumalacarreui, who demanded what testimonials he had of his calling or his qualifications. Our countryman presented his diploma of the College of Surgeons; and the name of Astley Cooper, which was attached to it, no sooner struck the eye of the Carlist leader, than he at once received his prisoner with friendship, and appointed him as surgeon in his army.

Sir Astley Cooper, by his unwearied assiduity in the dissecting-room, produced some of the most important contributions to modern surgery, which he published without regard to profit. His influence on the surgery of the day was great: "He gave operations a scientific character, and divested them in a great degree of their terrors, simply, confidently, and cheerfully, and thereby inspiring the patient with hope of relief, where previously resignation under misfortune had too often been all that could be expected from the sufferer."—Sir John Forbes.

The Resurrectionists

(The name of Sir Astley Cooper recalls a traffic which was formerly resorted to by anatomical teachers, for the purpose of obtaining subjects for dissection). From the year 1800 until the alteration of the law in 1832, the Resurrectionists, or "Body-snatchers," were almost the only sources of anatomical material. They were persons generally of the worst character, if we except the watchmen of that time, who were set to guard the burial-grounds, all of whom received a regular percentage on the sum obtained by the Resurrectionists. The public were, for many years, aware of churchyards being robbed; it was known to be effected with wonderful rapidity and dexterity; but the modus was never fathomed by the public, and, curiously enough, no accidental circumstance occurred to furnish the explanation; even the members of the medical profession, with very few exceptions, were kept in ignorance of it, so careful were the Resurrectionists to remove all traces of their mode of working after the completion of their task. It was generally supposed that the body-snatcher, in exhuming a body, first proceeded, as a novice would have done, to remove all the earth with which the grave had been recently filled; and having at length arrived at the coffin, that he then, with proper implements, forced off the lid, and so removed the body. This would have occupied considerable time, and rendered the body-snatchers proportionately more liable to detection. To avoid this, they only cleared away the earth above the head of the coffin, taking care to leave that which covered the other end as far as possible undisturbed. As soon as about one-third of the coffin was thus exposed, they forced a very strong crowbar, made of a peculiar form for the purpose, between the end of the coffin and the lid, which latter, by using the lever as one of the first order, they generally pressed up, without much difficulty. It usually happened, at this stage of the proceedings, that the superincumbent weight of the earth on the other portion of the coffin-lid caused it to be snapped across at a distance of about one-third of its length from the end. As soon as this had been effected, the body was drawn out, the death-gear removed from it, and replaced in the coffin, and finally the body was tied up and placed in its receptacle, to be conveyed to its destination. By this means, in the case of a shallow grave of loose earth, free from stones, the Resurrectionists would remove a body in a quarter of an hour. Silence was essential for the safety of the Resurrectionists; and in gravelly soils they had a peculiar mode of flinging out the earth, in order to prevent the rattling of the stones against the iron spade.

As soon as the body was raised it was generally placed in a sack and then carried to a hackney-

coach or spring-cart, usually the latter. Waving bodies were sent from the country to the metropolis, they were generally packed in hat-cases or in the casks in which hardwares are sent. Sometimes the subject, instead of being deposited in a sack, was laid on a large square green baize cloth, the four corners of which were tied together, as to inclose the body. It was not directly conveyed to any dissecting-room, but was generally deposited in some half-built house, or other convenient building, until the following day. A body-snatcher would then, dressed as a porter, swing the load over his shoulders, and often, in broad daylight, carry it to its place of destination through the most crowded streets of the metropolis. At other times the students would receive the bodies at their own houses and convey them in a hackney-coach to the dissecting-rooms, the coachman being well paid for his job. Sometimes the driver was exorbitant in his demands, and a somewhat ingenious in enforcing them: a porter who was conveying a body by coach to his hospital was astonished by finding himself in front of a Bow-street police office, when the coachman, tapping at the front window, said to the affrighted youth, "Sir, my fare to so-and-so is a guinea, unless you wish to be put down here." The porter, without any hesitation, was "Quite right, my man; drive on."

At the commencement of a new session at the hospitals, the leading Resurrectionists might be seen looking out for lecturers; and "fifty pounds down, and nine guineas a body," was often succeeded to; the former being the opening fee, and each school promised an exclusive supply. The competition for subjects, which the exhumators pretended to get up between the different schools, sometimes raised the prices so exorbitantly as to leave scarcely any remuneration for the lecturer. In some cases twenty pounds have been given for a single subject, in healthy seasons.

The competition occasionally led to revolting scenes of riot. Mr. Bransby Cooper, in his *Life of Sir Astley Cooper*, relates that two Resurrectionists having gained access to a private burial-ground near Holywell Mount by bribing the gravedigger, sometimes brought away six bodies in one night. Two other exhumators, hearing of this prospect, threatened to expose the gravedigger if he did not admit them to share his plunder; but he went beforehand with them, and pointed them out to a public-house full of labourers, as body-snatchers come to bribe him to let them steal from the ground, when the whole crowd rushed after the Resurrectionists, who narrowly escaped their vengeance. They ran to a police office, and in a loud voice, told the sitting magistrate if he sent officers to Holywell Mount burial-ground they would find every grave robbed of its dead; the gravedigger

Waving sold them to the body-snatchers. The indignant people rushed to the burial-ground, broke open the gates, dug up the graves, and finding in them empty coffins, seized the gravedigger, and threw him into one of the deepest excavations, and began shovelling the earth over him, and would have buried him alive, but for the activity of the constables. The mob then seized his wife and children, and dragged them through a stagnant pool in the neighborhood.

Such outrages as these, and the general indignation which arose from them, having interrupted the supply of bodies, other stratagems were resorted to. The Resurrectionists, by associating with the lower class of undertakers, obtained possession of the bodies of the poor which were taken to their establishments several days before interment, and often a clergyman read the funeral service over a coffin filled with brick-bats or other substitute for the stolen body.

The other bodies of suicides were sometimes stolen from the charge of persons appointed to sit up with them; by the Resurrectionists pretending a relationship with the deceased, and claiming the bodies for burial. By this means, one Patrick got a number of subjects, chiefly from St. Giles's workhouse, his wife being employed, under various disguises, to own the bodies. At other times the body-snatchers would destroy the tombs, vaults, and expensive coffins of the wealthy, to obtain their prey; and their exactions, villainy, and insouciance grew intolerable. The sale of a drunken man in a sack, as a subject, to Mr. Brookes the anatomist, is a well-known incident.

Nevertheless, so useful were the services of the regular Resurrectionists, that when they got into trouble, the surgeons made great exertions in their favour, and advanced large sums of money to keep them out of gaol, or support them during imprisonment. Sir Astley Cooper expended hundreds of pounds for this purpose: a single liberation has been known to cost £160; and an anatomical teacher has paid £5 as a weekly allowance, continued for two years, to a Resurrectionist confined in prison.

A leading Resurrectionist once received £144 for twelve subjects in one evening, out of which he had to pay his underlings £5 each. These high prices not unfrequently led persons, while alive, to offer to sell their bodies for dissection after death; but very rarely did any surgeon accede to such a proposal, since the law did not recognize any right of property in a dead body. Among the papers left by Sir Astley Cooper was found the following: "Sir, I have been informed you are in the habit of purchasing bodys, and allowing the person a sum weekly. Knowing a poor woman that is desirous of doing so, I have taken the liberty of calling to know the truth. I remain, your

humble servant, _____." Sir Astley Cooper's answer (copied on the back of the application) was brief: "The truth is, that you deserve to be hanged for making such an unfeeling offer.—A. C."

The graves were not always disturbed to obtain possession of the entire body, for the teeth alone at one time, offered tempting remuneration. Mr. Cooper relates an instance of a Resurrectionist feigning to look out a burial-place for his poor wife, and thus obtaining access to the vault of a meeting-house, the trap-door of which he unbolted, so that at night he let himself down into the vault, and secured the front teeth of the whole congregation, by which he cleared £60.

For nearly thirty years had this nefarious traffic flourished, when a Select Committee of the House of Commons was appointed to investigate the matter. In reply to the following question: "Does the state of the law actually prevent the teachers of anatomy from obtaining the body of any person, which, in consequence of some peculiarity of structure, they may be particularly desirous of procuring?" Sir Astley Cooper stated: "The law does not prevent our obtaining the body of an individual if we think proper; for there is no person, let his situation in life be what it may, whom, if I were disposed to dissect, I could not obtain." In reply to another question, Sir Astley Cooper said, "The law only enhances the price, and does not prevent the exhumation: nobody is secured by the law, it only adds to the price of the subject."

The profession had for many years been anxious to devise some plan to prevent the exhumation of bodies; but it was thought too hazardous to attempt the enactment of laws on the subject, in consequence of the necessary publicity of the discussions upon them. The horrible murders committed at Edinburgh, under the system of Burking, and exposed in the year 1828, at last rendered it peremptorily necessary for the Government to establish some means of legalizing dissection, under restrictions regulated by the ministers of the Crown. An inspector was appointed to whom the certificate of the death of the individual, and the circumstances under which he died, were to be submitted before the body could be dissected, and then only in the schools in which anatomizing was licensed by the Government; and this new system has much raised the characters of those who are teaching anatomy, as well as the science itself, in the estimation of the public.

The Resurrectionists mostly came to bad ends. There were but few regulars; the others being composed of Spitalfields weavers, or thieves, who found the disguise of this occupation convenient for carrying on their own peculiar avocations. One was tried, and received sentence of death, for robbing the Edinburgh mail, but was pardoned upon

the intercession of the Archdukes John and Lewis, who were much interested in finding the criminal at work in his cell, articulating the bones of a horse; he left the country, and was never after heard of. Another Resurrectionist, after a long and active career, withdrew from it in 1817, and occupied himself principally in obtaining and disposing of teeth. As a licensed sutler, in the Peninsula and France, he had drawn the teeth of those who had fallen in battle, and had plundered the slain: with the produce of these adventures, he built a large hotel at Margate, but his previous occupation being disclosed, his house was avoided, and disposed of at a very heavy loss: he was subsequently tried, and imprisoned for obtaining money under false pretences, and was ultimately found dead in a public-house near Tower-hill. It is credibly reported of one body-snatcher, that, at his death, he left nearly £6,000 to his family. One, being captured, was tried and found guilty of stealing the clothes in which bodies were buried, and was transported for seven years. A man who was long superintendent to the dissecting-room at St. Thomas's Hospital, was dismissed for receiving

and paying for bodies sent to his employer, and re-selling them at an advanced price, in Edinburgh he then turned Resurrectionist, was detected and imprisoned, and died in a state of raving madness.

W. R. Chambers "The Resurrectionists"

BOOK REVIEWS

Polio and Its Problems, by Roland H. Berg. This is the story of infantile paralysis written for lay readers. The importance of polio, as the author stresses, lies in the fact that it is an uncontrollable disease. Here is its biography divided into chapters covering 174 pages.

The purpose of the book is to tell people what is known about the disease and how that knowledge has been gathered; to tell what has been done and is being done. The information it contains is what doctors all know but for the layman it is an interesting and informative study which will help them to understand the problem.

Polio and Its Problems, by Roland H. Berg. B. Lippincott Company, Montreal. Price, \$3.75.

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EDITORIAL

J. C. Hossack, M.D., C.M. (Man.), Editor

How We Are Leading

To make a virtue of necessity and lead where we must otherwise follow, is, we suggested a month ago, the course of wisdom. In a way this is being done. The Executive of the Association are working upon a plan whereby it is hoped to make rural communities aware of the advantages of the M.M.S. So far the beneficiaries of this Service are urban dwellers and so satisfactory has it been to them that its scope is being enlarged. But the high cost of getting well is felt just as heavily in rural areas and the benefits of the Service should be available to people throughout the Province. The widespread acceptance of the present plan would have many advantages. It would, first of all, reduce the great cost of medical care to every member; it would also be more satisfactory to the doctor who would thereby be able to give wider service, be spared much bookkeeping and be saved considerable loss of revenue. But not the least advantage would be the effect upon all of us were State Health Measures to come before parliament. Already our plan is past its experimental stage. It is established and efficient. Were it also universal,

so far as the Province is concerned, it would not unlikely be accepted by the authorities as satisfactory. We should then continue to enjoy our present position as collaborators, as it were, with the public in their efforts to preserve and regain health as inexpensively as possible.

To make the plan province-wide requires action on the part of every rural doctor. First of all he must be convinced of its value to his patients, then he must encourage his patients to enroll. Here is something, he can say, that the doctors themselves brought into being when Health Insurance was scarcely mentioned in political circles. It is an evidence of our wish to serve and at the same time make service inexpensive. It is almost the only way whereby the good of the old methods can be continued with the best of the new.

By personal contact the idea can be spread and a much larger roll of subscribers obtained. Rural conditions will require modifications in the urban scheme and these modifications are now being considered. But it is not too early to sow the seed. The matter is of such importance that you will hear much about it in future issues.

The Late Dr. J. D. McQueen**An Appreciation by Brian D. Best, M.D.**

The passing of Dr. John D. McQueen has taken from Manitoba's medical profession one of its most valued members and from its people one of its most respected citizens.

Amongst his outstanding personal characteristics were an unchallenged honesty and integrity, uprightness and charitableness, firm sympathy and quiet, shrewd, boyish sense of humor.

It was the writer's good fortune to have spent eight years in close association with J. D. McQueen in University and Hospital teaching and it can be said without fear of contradiction that he was unequalled in his ability in demonstrating and instructing gynecology to over a score of graduating classes in medicine. He never forgot the student in his enthusiasm of teaching and was ever conscious of the students' difficulties. His methods were direct, simple, and to-the-point. His good common sense in all things and his superior clinical judgment were evident in both his teaching and practice. As a gynecological diagnostician he was an acknowledged leader in Western Canada. It was a revelation to those of us who were his students and assistants to witness a pelvic examination performed by him. Gentle, patient, thorough and systematic in execution, he permitted

no prejudices to warp or falsify his objective findings. He always taught and practiced the importance of committing oneself on paper to a diagnosis, right or wrong though it might be, as he sincerely believed that only in this way could one's diagnostic "batting average" be improved.

Although others may have possessed greater speed and polish in operative work, his technique was beyond reproach; careful and meticulous to a fault, he revealed a tremendous respect for blood loss and avoidance of trauma in his operations, concrete criteria characteristic of all good surgeons.

Although, compared with many, his indications for surgery were strict and conservative, nevertheless he never failed to act quickly and decisively when the patient's condition or disease warned of danger or disaster.

Amongst his many contributions to medical practice in this community, the greatest was his tireless and enthusiastic study, treatment, and follow-up of hundreds of cases of pelvic malignancy. He had no peer in this field and his results published and unpublished were equal to any of those reported elsewhere.

He was a voracious reader of both scientific and fictional works, and the writer recalls many a pleasant evening with him in his home before his fireplace discussing the events of the day, politics, a new novel or a biography.

One of his great pleasures in his latter years was football, although he was interested in and ardently supported other community sports. But at Osborne Stadium on a crisp autumn Saturday he could be seen as one of the most active and spirited fans ever cheering, ever faithful to his beloved Blue Bombers.

As expected, he bore his final illness with courage, dignity and cheerfulness.

To his loving and devoted wife and daughter goes out the deepest sympathy of the medical profession of Canada.

Free Streptomycin

All patients in Manitoba's sanatoria who might be benefitted by the new drug, streptomycin, will receive it free of charge as a result of a grant of money under the new national health programme, the minister of National Health and Welfare, Hon. Paul Martin, said here today.

Free streptomycin is one feature of an all-out drive against tuberculosis in Manitoba being undertaken by the provincial department of Health and Public Welfare. Other projects include purchases of X-ray and medical equipment for sanatoria and tuberculosis clinics, provision for an additional portable X-ray and generator and funds to pay for post-sanatorium pneumo-thorax treatments in certain cases.

All the projects were advanced by the provincial Department of Health and Public Welfare, and notice of the federal government's approval has been forwarded to the provincial minister, Hon. Ivan Schultz.

Streptomycin is not a cure-all for tuberculosis, Mr. Martin emphasized, but in certain cases it had proven effective, not only in arresting the disease but also in reducing the time in hospital and in hastening the patient's return to normal activity. Because the drug is new and requires skilled handling, streptomycin treatments are relatively expensive and often beyond the reach of many patients. Under the new programme the drug will be available to all who may benefit from its use.

Funds from the federal health grant for tuberculosis control will be used to buy X-ray equipment for out-patients service of the St. Boniface Sanatorium, for surgical and laboratory equipment at the Manitoba Sanatorium, Ninette, and for equipment to extend and improve diagnostic services at the Central Tuberculosis Clinic, Winnipeg. The portable X-ray equipment and generator will be used in referral clinics throughout the province.

A small sum has been allotted to pay costs of post-sanatorium pneumo-thorax treatments for patients, mainly in remote areas, who cannot conveniently attend the free clinics in Winnipeg, Ninette, St. Vital, Brandon and The Pas.

OBITUARY

Dr. Robert Francis Rorke

Dr. Robert Francis Rorke, a pioneer in the establishment of public baby clinics in Winnipeg, died on Dec. 15, at his home, at the age of 85.

Born in St. Thomas, Ont., he graduated from McGill in 1893, and in post-graduate work obtained the M.R.C.S., L.R.C.P., London. He spent several years in post-graduate work in Boston and Vienna. In 1905 he came to Winnipeg and soon established a reputation as a pediatrician. In conjunction with the late Dr. E. Richardson he started the free clinic for babies and a babies' milk depot at Logan Avenue in 1908. Later the milk depot was taken over by the city, but Dr. Rorke continued as its head. In 1919 he was appointed lecturer, and from 1920 to 1930 he served as Associate Professor of Pediatrics. From 1909 to 1932 he served on the staff of the Children's Hospital and in 1934 he was appointed Physician Emeritus, and for the years 1922 to 1931 he was Pediatrician at the Winnipeg General Hospital. On his retirement he was placed on the Honorary Consulting Staff.

Dr. Rorke saw the city's infant mortality rate drop from 120 per 1,000 in 1912 to about 30 per 1,000 in recent years, and he could justly claim credit for the reduction. To be able to instruct new Canadian mothers he learned to speak several languages. He combined a wealth of scientific knowledge and clinical experience with true nobleness of spirit.

Dr. A. G. Denmark

Dr. A. G. Denmark died at Bishop's Teignmouth, Devonshire, England, on December 10, aged 61. Graduating from Manitoba Medical College in 1894, he practised for many years at Langenburg, Saskatchewan, and then at Whitemouth, Man., until he retired.

Refresher Course

The Faculty of Medicine of the University of Manitoba will offer a four-day Refresher Course beginning April 19th to 22nd. A detailed programme will be published in the March issue of the Review.

C. A. M. S. I.

A communication has been received again this year from the Canadian Association of Medical Students and Internes seeking co-operation with institutions and members of the profession in securing suitable employment for medical students during the summer months. Any communication addressed to the Director of Public Relations, C.A.M.S.I., University of Western Ontario, London, Ont., will be promptly dealt with.

ASSOCIATION PAGE

Reported by M. T. Macfarland, M.D.

Income Tax Information

Form T4, 1948—Remuneration Summary being employer's Annual Return of Salaries, Wages, Commissions, etc., paid for the calendar year 1948, must be prepared in triplicate, and two copies sent to the District Income Tax Office on or before the last of February, 1949.

The practice of making quarterly installment payments on income tax may be new to certain of our members, and the rule in this connection is as follows:

Individuals whose income—(a) is derived from carrying on a business or profession (other than farming); (b) is derived from investments; or (c) is more than 25% derived from sources other than salary or wages, are required to pay their estimated tax by quarterly installments during such year. Each payment must be sent in with Installment Remittance Form T.7-B Individuals. Any balance of tax is payable with interest with the T-1 General return which is due to be filed on or before April 30 of the succeeding year.

The following timetable indicates the returns required during 1949.

A. Doctors NOT receiving salaries amounting to $\frac{3}{4}$ of income.

Date Due	Forms to be Used
March 31, 1949	T.7-B Individuals, 1949
April 30, 1949	T-General, 1948 (Note: Doctors should not use T.1 Special regardless of income).
June 30, 1949	T.7-B Individuals, 1949
Sept. 30, 1949	T.7-B Individuals, 1949
Dec. 31, 1949	T.7-B Individuals, 1949

B. Doctors receiving salaries amounting to $\frac{3}{4}$ or more of income:

Date Due	Forms to be Used
April 30, 1949	T.1-General, 1948
Whenever Status is changed	
With respect to new employer, marital status, dependents).	T.D.-1

Reproduced herewith is the 1943 memorandum regarding returns of members of the medical profession concurred in by the Canadian Medical Association and the Commissioner for Income Tax, with known alterations for 1947 and 1948 in black type:

Dominion Income Tax Returns

By Members of the Medical Profession

As a matter of guidance to the medical profession to bring about a greater uniformity in the

data to be furnished to the Income Tax Division of the Department of National Revenue in the annual Income Tax Returns to be filed, the following matters are set out:

Income

1. There should be maintained by the doctor an accurate record of income received, both as fees from his profession and by way of investment income. The record should be clear and capable of being readily checked against the return filed. It may be maintained on cards or in books kept for the purpose.

Expenses

2. Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

- (a) Medical, surgical and like supplies;
- (b) Office help, nurse, maid and bookkeeper; laundry and malpractice insurance premiums. (It is to be noted that the Income War Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to the income);
- (c) Telephone expenses;
- (d) Assistants' Fees;

The names and addresses of the assistants to whom fees are paid should be furnished. This information is to be given each year on Income Tax form known as Form T.4, obtainable from the Inspector of Income Tax.

(e) Rentals paid; the name and address of the owner (preferably) or agent of the rented premises should be furnished. (See (j));

(f) Postage and stationery;

(g) Depreciation on medical equipment; the following rates will be allowed provided the total depreciation already charged off has not already extinguished the asset value: Instruments—Instruments costing \$50.00 or under may be taken as an expense and charged off in the year of purchase.

Instruments costing over \$50.00 are not to be charged off as an expense in the year of purchase but are to be capitalized and charged off rateably over the estimated life of the instrument at depreciation rates of 15 per cent to 25 per cent, as may be determined between the practitioner and the Division according to the character of the instrument, but whatever rate is determined upon will be consistently adhered to; office furniture and fixtures—10 per cent per annum. Library—

The cost of new books will be allowed as a charge.

(h) Depreciation on motor cars on cost:

Twenty per cent 1st year;

Twenty per cent 2nd year;

Twenty per cent 3rd year;

Twenty per cent 4th year;

Twenty per cent 5th year.

The allowance is restricted to the car used in professional practice and does not apply to cars for personal use.

For 1947 and subsequent years the maximum cost of motor car on which depreciation will be allowed is **\$2,500**.

(i) Automobile expense (one car); this account will include cost of license, oil, gasoline, grease, insurance, washing, garage charges and repairs. Alternative to (h) and (i) for 1947 and subsequent years.

In lieu of all the foregoing expenses, including depreciation, there may be allowed a charge of **7c** a mile for mileage covered in the performance of professional duties. Where the car is not used solely for the purpose of earning income the maximum mileage which will be admitted as pertaining to the earning of income will be 75 per cent of the total mileage for the year under consideration.

For 1940 and subsequent years where a chauffeur is employed, partly for business purposes and partly for private purposes, only such portion of the remuneration of the chauffeur shall be allowed as pertains to the earning of income.

(j) Proportional expenses of doctors practising from their residence:

(a) owned by the doctor: Where a doctor practises from a house which he owns and as well resides in, a proportionate allowance of house expenses will be given for the study, laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, depreciation and interest on mortgage (name and address of mortgagee to be stated):

(b) rented by the doctor: The rent only will be apportioned inasmuch as the owner of the premises takes care of all other expenses.

The above allowances will not exceed one-third of the total house expenses or rental unless it can be shown that a greater allowance should be made for professional purposes.

(k) Sundry expenses (not otherwise classified)—The expenses charged to this account should be capable of analysis and supported by records.

Claims for donations paid to charitable organizations will be allowed up to 10 per cent of the net income upon submission of receipts to the Inspector of Income Tax. This is provided for in the Act.

The annual dues paid to governing body under which authority to practice is issued membership association fees (.....) to be recorded on the return, will be admitted as a charge. The expenses of attending post-graduate courses or medical conventions will be allowed as outlined in **Directive No. 205, Dated July 1, 1948, Signed by Mr. D. Scully, Deputy Minister (Taxation) and Notified in the August, 1948, Issue of the Review (Page 446):**

"Subject: Assessments—Convention Expenses of Medical Profession.

Effective January 1st, 1948, the reasonable expenses incurred by members of the medical profession in attending the following Medical Conventions will be admitted for Income Tax purposes against income from professional fees:

1. One Convention per year of the Canadian Medical Association.

2. One Convention per year of either a Provincial Medical Association or a Provincial Division of the Canadian Medical Association.

3. One Convention per year of a Medical Society or Association of Specialists in Canada or the United States of America.

The expenses to be allowed must be reasonable and must be properly substantiated; e.g., the taxpayer should show (1) dates of the Convention, the number of days present, with proof of departure supported by a certificate of attendance issued by the organizations sponsoring the meetings; (2) expenses incurred, segregating between (a) transportation expenses; (b) meals, and (c) hotel expenses, for which vouchers should be obtained and kept available for inspection.

None of the above expenses will be allowed against income received by way of salary or annuity; such deductions are expressly disallowed by statute."

(1) Carrying charges: The charges for interest paid on money borrowed against securities pledged as collateral security may only be charged against the income from investments and not against professional income.

(m) Business tax will be allowed as an expense but Dominion, Provincial or Municipal income tax will not be allowed.

Professional Men Under Salary Contract

3. It has been held by the Courts that a salary is "net" for Income Tax purposes. The salary of a Doctor is therefore taxable in full without allowance for automobile expenses, annual medical and other like expenses. If the contract with each employer provides that such expenses are payable by the employer, they will be allowed as an expense to the employer in addition to the salary paid to the assistant.

The concession obtained in the Courts a couple of years ago has been nullified by amendment

the War Income Tax Act, effective Jan. 1st, 1948, is as follows: "6 In computing the income from an office or employment, no amount is deductible for a disbursement or expense laid out for the purpose of earning the income:" (except expenses of transport employees).

Thus salaried doctors who participate in Manitoba Medical Service may NOT deduct Association fees, or the annual dues payable to the College of Physicians and Surgeons. However, by arrangement between the employer and employee, the remuneration may be divided into two parts, a net salary which is reported to Income Tax Department, and a reasonable amount for legitimate expenses which is NOT reported to the Income Tax Department, but for which vouchers are submitted to the employer, and are available for inspection. In that way, such questions as on page 3, of Income Tax Form, T1, General, 1947: "Did you, in addition to salary (if any) receive—in connection with any duty, office or employment—a daily, weekly, monthly, yearly or other sum? Were you required to and did you submit accounts to the payor in full for the expenditure thereof?" may be answered YES each time. Such legitimate expenses should include the following items:

- (a) Attendance at meetings as for practising physicians.
- (b) Annual dues of licensing bodies and medical associations and societies.
- (c) Transportation required in his employment.
- (d) Medical library, books and journals.
- (e) Malpractice insurance premiums.
- (f) Cost and depreciation of medical equipment required in his work.

It must be remembered that superannuation or annuity funds may be affected by the lowered net salary figure.

M.M.A. — Fees — C.P. & S.

Early in January a combined Association letter requesting continuation of your membership in the Association for the current year, also a statement of Annual Fee to the College of Physicians and Surgeons of Manitoba for 1949, was mailed to each member of the profession. By resolution of General Council in June, the C.M.A. requested that the annual rebate of \$2.00, which was allowed to the divisions during the war years be discontinued beginning January, 1950, when the full fee of \$10.00 for C.M.A. Membership will become operative. The payment of the additional \$2.00 for each member of our Association will mean an annual decrease in M.M.A. revenue of approximately \$1,300. The Executive Committee have decided that the fee should remain at the present level and no higher rate is anticipated. Action was taken, however, to clarify the situation with respect to the fee payable by salaried doctors and

it was agreed that those engaged in private practice, those whose work is being paid for on a fee-for-service basis, or those employed by an individual or group rendering accounts on a fee-for-service basis, should pay the \$35.00 fee. This means that only recent graduates and those who are employees of the Provincial or Municipal Governments, or other bodies which do not render accounts for the fee-for-service basis, will be eligible for the \$15.00 fee. The annual fee payable by members of the College of Physicians and Surgeons remains, for the present year, at the very low rate of \$2.00, though it is altogether likely that this matter will be the subject of revision at the next meeting of Council.

Northern District Medical Society

A meeting of the Northern District Medical Society was held at General Hospital, Dauphin, on the evening of Wednesday, December 1st, 1948.

Present were: Doctors R. M. Creighton, A. S. Little, M. Potoski, Secretary-Treasurer, and W. G. Ritchie, Dauphin; P. Goldstein and L. P. Lansdown, Swan River; W. Bashucky, Winnipegosis; J. E. C. Morton, Brandon; J. C. Colbeck, M. R. Elliott, M. T. Macfarland and E. W. Pickard, Winnipeg.

The guests were received at the new Provincial Government Health Unit Building, which has just recently been completed. Following a tour of the hospital, dinner was served in the Nurses' Dining-Room.

At the short business meeting, presided over, in the absence of Dr. R. E. Dicks, by Dr. A. S. Little, who outlined several of the projects in which the M.M.A. is interested:

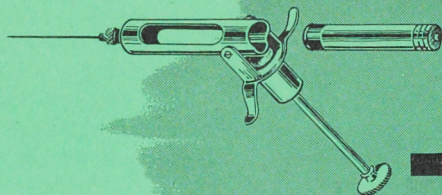
1. Finalization of negotiations with the Workmen's Compensation Board with a new schedule of fees and outline of regulations.
2. Group Insurance against accident and illness with the North American Life and Casualty Company.
3. Extension of the Manitoba Medical Service into the areas outside Greater Winnipeg.
4. Federal Health Grants Study Committee.

The Executive Secretary commented briefly on the above, outlining the Fee Taxing Committee for the W.C.B., and the formation of the Provincial Health Survey Committee with three representatives from the Association.

Dr. E. W. Pickard, Winnipeg, spoke on "The Early Use of Skin Grafts," in order to secure the best cosmetic and functional results. Dr. J. C. Colbeck outlined the manner in which the Central and Peripheral Bacteriological and Pathological Laboratories could render the most effective service.

A good discussion period followed. After adjournment several of the members visited the home of Doctor M. Potoski.

(Continued on Page 104)



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These exclusive features of Tubex administration combined with the added advantages of 96 hour blood levels give you an ideal combination.

Procaine Penicillin-G in Oil

WITH ALUMINUM MONOSTEARATE

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Maintains therapeutic blood levels for 24 hours in the majority of cases.

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SOCIAL NEWS

Reported by K. Borthwick-Leslie, M.D.

Sincere congratulations to Dr. Ellen Douglass on her promotion to "Dame of Grace" in the venerable Order of the Hospital of St. John of Jerusalem. The promotion was approved by the King and announced by the Governor-General. I know of no more fitting title for the lady than Dame of Grace.

Well deserved also is the appointment of Colonel John Crawford, M.B.E., as Senior Consultant to the Director of General Medical Services. John is now a full "Red Tab Wolf."

Spring and romance have descended on our punger (take a bow John) members early this year. Rumor has it that Drs. Nancy Mathers and John Gemmill will plight their troth early in the future. Will some kind soul retire to Florida or somewhere and leave the kids a home to live in?

The marriage of Mabel Severin and Dr. Gordon Smith took place in Holy Trinity Church on Dec. 10th, 1948. Dr. Smith is the son of our well beloved late Dr. Frank Smith. The young couple will reside at 184 Canora Street.

The column is not complete without Anna Wilson and sure enough, there she is in Minneapolis for a month eating up knowledge in the Hospitals and music and culture in the theatres. Lucky Girl!

Welcome to Winnipeg to Dr. and Mrs. Irving Miller and family who have returned from London, Eng., and on the Continent. Dr. Miller, M.R.C.P., has successfully completed post-graduate work in Internal Medicine.

Dr. Jocelyn Robb has arrived in Madison to continue her post-graduate work in anaesthesiology. Good luck and good work, Jocky.

Dr. and Mrs. A. R. Tanner announce the birth of Frances Elizabeth, January 3rd, 1949; also Dr. and Mrs. G. T. McNeil, of Carberry, Man., announce the arrival of Ronald George, on January 8th, 1949.

The Medical Women meet next January 19th at the University Women's Club. Members will present short papers from the current Journals. Hope I have time to read mine!

I hear that Dr. C. A. Adamson leaves this month to reside and practice in Berkeley, California. It will not be necessary for Chris. to take any of our snow with him as Berkeley has plenty of its own.

Dr. Irvine Zeavin has left for Lincoln, Neb., to take up a position there as resident in the St. Elizabeth Hospital. He is the son of Dr. and Mrs. Samuel Zeavin, of Winnipeg.

CLINICAL LUNCHEONS

Clinical Luncheons

Clinical Luncheons during the month of February will be held as follows:

Tuesday, February 1st—King Edward Hospital.

Thursday, February 3rd—Winnipeg General Hospital.

Friday, February 4th—Children's Hospital.

Tuesday, February 8th—Misericordia Hospital.

Thursday, February 10th—St. Boniface Hospital.

Friday, February 11th—Victoria Hospital.

Tuesday, February 15th—Grace Hospital.

Thursday, February 17th—Winnipeg General Hospital.

Tuesday, February 22nd—St. Joseph's Hospital.

Wednesday, February 23rd—Deer Lodge Hospital, D.V.A., Evening.

Thursday, February 24th—St. Boniface Hospital.

General Ward Rounds are held at the Municipal Hospital at 8.30 a.m. each Friday, and at the Children's Hospital at 11.00 a.m. each Thursday.

Tumor Clinics are held at 9.00 o'clock each Wednesday morning at Winnipeg General Hospital, and at 10.00 o'clock each Friday morning at St. Boniface Hospital.

The regular meeting time of the Winnipeg Medical Society is the third Friday, Feb. 18th.

yours for a more
rapid recovery...

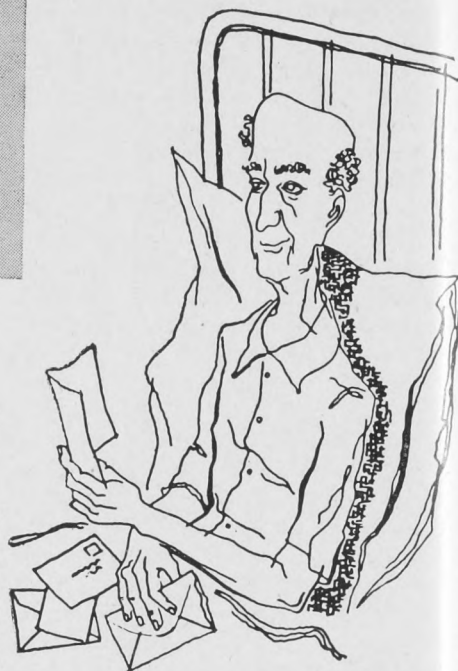


with this new
3-tablet-a-day treatment
for secondary anemias

When a patient needs supplementary vitamins as well as iron, as is frequently the case in anemias complicated by prolonged or severe illness, chronic blood loss and poor nutritional history, IBEROL tablets provide multiple therapy in convenient form. Only one IBEROL tablet t.i.d. with meals is enough for the average patient—as the formula shows.

Moderate size is achieved by using the ferrous sulfate as one of the two subcoats which seal the core of the tablet. Agreeable odor and taste come from the outer sugar coating. Capsule shape makes IBEROL easy to swallow. And smaller daily dosage makes IBEROL comparatively economical for the patient.

Combined iron and nutritional factors suggest the effectiveness of IBEROL in both secondary and nutritional anemias, as well as for prophylaxis in pregnancy, old age, surgical after-care and similar conditions. IBEROL is available through your pharmacy in bottles of 100, 500 and 1000 sugar-coated tablets. ABBOTT LABORATORIES LIMITED, Montreal.

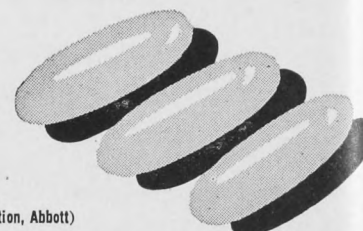


three IBEROL tablets, the daily therapeutic dose for adults, **supply:**

FERROUS SULFATE, U.S.P.	1.05 Gm.
(representing 210 mg. elemental iron, the active ingredient for the increase of hemoglobin in the treatment of iron deficiency anemia.)	
plus these nutritional constituents:	
Folic Acid	5.1 mg.
Thiamine Hydrochloride	6 mg. (6 x MDR*)
Riboflavin	6 mg. (3 x MDR*)
Nicotinamide	30 mg. (1½ x RDA†)
Ascorbic Acid	150 mg. (5 x MDR*)
Pyridoxine Hydrochloride	3 mg.
Pantothenic Acid	6 mg.
(as Calcium Pantothenate)	
Liver Fraction	1.5 Gm.
(boiling water extract)	

*Minimum Daily Requirement

†Recommended Daily Dietary Allowance



(Iron—Vitamin B Complex—Folic Acid—Liver Fraction, Abbott)

COLLEGE OF PHYSICIANS AND SURGEONS OF MANITOBA

(Continued From September, 1948, Issue)

September 27th, 1948—Finance Committee

The business of the meeting was consideration of an increase in the annual fee payable by members to the College of Physicians and Surgeons; and signatory who should be empowered to attend the safety deposit box with the Treasurer.

Both matters were referred to the Annual Meeting of Council.

October 14th, 1948—Registration Committee

Enabling Certificates Granted: Cyril Louis Mitchell, M.D., College of Medical Evangelists, 1939; D.N.B., 1939. Donald Moffat Sheppard, M.B., B.S., Edinburgh U., 1939; F.R.C.S., Edinburgh, 1945; M.R.C.O.G., London, 1948.

Temporary Licence Granted: John Christopher Olbeck, M.R.C.S., England, 1932; L.R.C.P., London, 1932; M.B., B.S., London, 1937.

October 18, 1948—Discipline Committee

Members present: Drs. A. A. Alford, C. B. Stewart, C. W. Wiebe, J. Prendergast, H. Bruce Chown and M. T. Macfarland, Registrar.

The Committee studied the various bulletins from Alberta, Saskatchewan and Great Britain, in which disciplinary proceedings were outlined.

The Committee were of the opinion that it was possible to come to a definite decision without the members of Council, and felt that a committee should be appointed to study the question during the year and bring in a report at the May meeting of Council, forewarning the members before the meeting of any suggestions that might be made, so that they would have a chance to study the ideas.

The Registrar reported that after some inquiry, had been ascertained that Dr. _____ had been readmitted to hospital.

October 18, 1948—Education Committee

Members present: Drs. A. A. Alford, E. K. Cunningham, I. Pearlman and M. T. Macfarland, Registrar.

The business before the meeting was to consider whether the internship year should be graduate or undergraduate, and whether a year's internship should be required before the issuance of an enabling Certificate or registration.

The Committee considered the correspondence received in regard to this question:

1. A letter from Dr. W. Bramley-Moore, Registrar of Alberta, stating that in Alberta a certificate indicating that a doctor has served one year's internship in an approved hospital or hospitals is required for enabling certificate or registration. The internship to be either graduate or undergraduate.

2. A letter from Dr. J. Fenton Argue, Registrar of the Medical Council of Canada, enclosing copy of letter from Dr. H. H. Hepburn, Chairman of the Education Committee of the Medical Council of Canada.

3. Replies to a questionnaire sent to each Registrar of the Colleges of Physicians and Surgeons across Canada, inquiring whether internship year is required for enabling certificate or registration, were considered.

Motion: "THAT we recommend to Council that no graduate in medicine be granted an enabling certificate to write the examinations of the Medical Council of Canada, a Certificate of Licence, or a Certificate of Registration, unless he produces a certificate indicating that he has served one year's internship in an approved hospital or hospitals." Carried.

Motion: "THAT this Committee approves extension by the University of Manitoba of the period of premedical studies in the Faculty of Arts and Sciences to a minimum of three years, effective in the 1949-50 session." Carried.

Annual Meeting

The Sixty-third Annual Meeting of the Council of the College of Physicians and Surgeons of Manitoba was held Wednesday, October 20th, 1948, in the Board Room at the Medical College, at 9 a.m.

The President, Dr. W. F. Stevenson, called the meeting to order.

Roll Call

The following members were present: Doctors A. A. Alford, B. D. Best, H. Bruce Chown, E. K. Cunningham, Edward Johnson, J. M. Lederman, I. Pearlman, J. S. Poole, F. K. Purdie, J. Prendergast, F. A. Rybak, D. L. Scott, W. F. Stevenson, C. B. Stewart, T. H. Williams and M. T. Macfarland, Registrar. Dr. G. Gordon Ferguson, Registrar, College of Physicians and Surgeons of Saskatchewan, was also present.

Reading of the Minutes and Their Approval

The minutes of the Special Meeting of the Council held May 19th, 1948, were presented to Council and accepted by resolution.

Business Arising From the Minutes of the Special Meeting Held May 19th, 1948**A. Results of the By-Election in Brandon Constituency.**

Dr. F. K. Purdie, Griswold, Manitoba, was elected the representative to the Council of the College of Physicians and Surgeons of Manitoba from the constituency of Brandon, to complete the unexpired term of Dr. W. S. Peters, resigned.

The Registrar reported that there were 51 physicians in Brandon Constituency, of which 47 were eligible to vote. There were 18 nomination papers returned, and 9 names nominated. 6 accepted nomination, and 32 voting papers were returned.

The voting papers were ordered to be destroyed.

B. Reciprocal Relations With Other Medical Boards in Australia.

The Registrar stated that he had nothing further to report at this time.

C. Medical Student Registration in the University of Manitoba Calendar.

The Registrar reported that the Faculty of Medicine Calendar for 1948-49 contained some changes, but reference to student registration is not yet included.

D. Foreign Graduates.

The Registrar reported that he had received approximately 50 communications from graduates of European medical schools. He stated that some of them were coming over as labourers, and then trying to establish their credentials. He asked for direction in handling these cases.

Dr. G. G. Ferguson stated that the problem was also acute in Saskatchewan, and outlined the manner in which applications have been considered.

A letter from Dr. W. Bramley-Moore, Registrar, College of Physicians and Surgeons of Alberta, outlined the procedure followed in that Province, and suggested the Association of Canadian Medical Colleges be asked to accept the responsibility of assessing the qualifications of these foreign graduates.

Dr. J. S. Poole suggested that this Council follow the course taken by Alberta until the Association of Canadian Medical Colleges agrees to assess the qualifications of European graduates. He thought that the University of Manitoba should guarantee that each foreign graduate's education has been properly conducted, and if so, he be asked to serve one year as an interne in a qualified hospital, following which he should be given an enabling certificate. He stated that the Medical Council of Canada will not do anything about it. They are an examining body, and examine the men sent by the Provinces.

Dr. B. D. Best suggested that the Association of Canadian Medical Colleges be requested to strike a committee to investigate the standards of the European universities.

The following resolution was accepted:

(i) "THAT the University of Manitoba be asked to assess the qualifications of the applicant.

(ii) the applicant, if approved, be required to serve one year as an interne in an approved hospital.

(iii) the applicant must furnish a Basic Science Certificate."

E. Remuneration to Members of Council.

(Refer to reports of the Treasurer and Auditor.)

Reports of Officers and Their Consideration.

A. Registrar's Report.

Mr. President and members of Council:

In my first report to Annual Meeting, I desired to record my appreciation of the confidence vested in me in asking me to assume duties of Registrar following the lengthy tenure in office by Dr. G. Campbell.

Since January 31st, 1948, increased office accommodation has been available by the use of full suite at 604 Medical Arts Building. Accommodated in the office at the present time are Manitoba Medical Association, the College of Physicians and Surgeons of Manitoba, the Winnipeg Medical Society, and the Manitoba Medical Review. In common with other tenants, rent raised 10% during the year. With the consolidation of the office work, there was amalgamation of the Association and College staffs, and present staff consists of three permanent employees.

Obituary—It is with deep regret that the following list of deceased members is presented:

Samson Wallace Arthur, Portage la Prairie; August Blondal, Winnipeg; George Harold Carman, Winnipeg; James Winter Cartmell, Glenora; Thomas William W. Crawford, England; Ralston Davidson, Winnipeg; Samuel James Edwards, Winnipeg; Claude Edward Freer Fortin, California; Frederick James Hart, Winnipeg; Henry Hutchinson, Winnipeg; Armand Landry, Ste. Anne; Baptiste; William John Moore McFetridge, Winnipeg; Andrew Edward McGavin, Carman; Edward William Montgomery, Winnipeg; George Finlayson Stephens, Vancouver, B.C.; Alfred Brodie Stephens, Winnipeg; George Forest Weatherhead, Winnipeg; John Douglas Young, Winnipeg. (A momentary silence was observed).

Life Membership—The following are eligible for Life Membership under resolution of October 1933:

Leon Georges Benoit, Wilfred A. Bigelow, James Harvey Buchanan, Robert Nasmyth Beman, Fred Todd Cadham, Alva B. Chapman, Louis Collin, William Alvin Cooper, Alexander Gilchrist, Charles Hunter, Gilbert Harry Lansdown, C. Margolese, Alexander Geo. Meindl, Rosslyn Mitchell, Wesley George Montgomery, Hefner Oliver McDiarmid, George Washington McInnes, Dougald McIntyre, James Curry McMillan, George Boyd McTavish, John Robert Warburton Nicholson, Christopher R. Rice, Alexander J. Shilstra, John T. Stirling, Alexander James Swan, Everett Johnston, Washington, Oliver Sayles Waugh, Charles Johnston Wheaton, David R. Williams, Henry York

In the changeover and my attempt to acquire knowledge of my office, a great deal of time has been required.

During the year there have been: 1 special meeting of Council; 1 meeting of the Executive Committee; 2 meetings of the Discipline Committee; 2 meetings of the Education Committee; 2 meetings of the Finance Committee; 1 meeting of the Committee of Fifteen; 11 meetings of the Registration Committee.

It is rather significant that the latter Committee is the most active and most frequently called, yet the only Committee which is not remunerated.

During the year there have been: 88 applications for student registration of which 85 have been granted; 56 applications for enabling certificates of which 52 have been granted; 22 applications for temporary licences of which 22 have been granted; (2 have been cancelled and 1 registration has been issued); 62 applications for registration of which 60 have been granted; 1 name has been restored to the Register.

Numerous requests concerning the possibility of emigrating to Canada have been received from residents in the British Isles, various countries of Europe, India, Australia and New Zealand. Many persons have arrived in Canada and are experiencing some difficulty in establishing their credentials.

At the meeting of the Registrars, which, through the generosity of Council, I was permitted to attend at Toronto in June, lengthy discussion took place concerning the necessity of properly evaluating all European diplomas and credentials since 1933, of ensuring uniform standards for the granting of enabling certificates, of the necessity of obtaining clearance from the Federal Immigration Department, and of the desirability of requiring citizenship. One province even went so far as to suggest the abolition of reciprocal registration with the General Medical Council of Great Britain.

Cash receipts at the Registrar's Office are as follows:

Annual fees	\$1,429.00
Registrations	6,000.00
Temporary Licences 7 @ \$ 5.00	35.00
Temporary Licences 14 @ 10.00	140.00
M.C. Certificates 11 @ 5.00	55.00
C.C.C. Certificates 52 @ 5.00	260.00
Medical Student Registration 85 @ 1.00	85.00
Refund business tax—Dr. W. G. Campbell	6.16
Reinstatement fee	100.00
Refund—contribution to C.M.A.	675.49
	<hr/>
	\$8,785.65

Number of registrations—Sixty (60)

Number of temporary licences—Twenty-two (22)

Two (2) have been cancelled

Number of registered doctors in the Province as at September 30, 1948:

	Perm.	Temp.	Total
Greater Winnipeg	500	11	511
Outside Winnipeg	227	9	236
	<hr/>	<hr/>	<hr/>
	727	20	747

Register—Early in 1948, cards were circulated seeking information which it was hoped would be sufficiently complete to publish an up-to-date edition of the Register during the present year. The plan is progressing slowly, and Council may wish to direct whether the publication should be further delayed in the hope of greater accuracy since so many changes are being effected daily. It is noted that the American Medical Association Directory should be published early in 1949.

Copies of Medical Act and By-laws—Office Consolidation of the Medical Act and recent amendments was carried out by the Executive Officer, Department of Health and Public Welfare, and 100 copies were secured from the King's Printer. Extensive revision of the By-laws should be undertaken in the near future since few copies are now available. New information and application forms should also be prepared in the light of recent amendments to the Act.

Printing of Minutes—Considerable time was occupied in editing the proceedings of Committees and Council from November, 1946, to October, 1947, including minutes of the last Annual meeting. These are reproduced in condensed form together with reprints of the proceedings from October, 1947, until September, 1948, which appeared in the May, June, July and September issues of the Manitoba Medical Review. Council may wish to pass on the format.

Professional Directory—In his dual capacity, your Registrar has had frequent written communications and personal interviews with prospective employers. Every effort has been made to bring prospective employer and employee together, and every assistance has been given the Provincial and Federal bodies in facilitating temporary licence or registration for personnel covered by the 1947 amendments to the Medical Act.

Narcotics—Representations have been received from the Narcotic Division, Department of National Health and Welfare, the Manitoba Pharmaceutical Association, and the Retail Druggists Association of Manitoba, requesting co-operation from the profession in respect to the requirement of the Narcotic Act that dated prescriptions signed by the doctor must be in the druggist's hand before he is permitted to deliver the narcotic. Recently a circular, N-363, has been sent by the Department to each practising physician emphasizing that the regulation is to prevent a supply of the narcotic drugs from reaching illicit channels.

Criticism from the public—Complaints concerning members of the profession have been more frequent during the past year. They range from telephone calls and letters from individuals concerned, to official communications from the Advisory Commission under the Health Services Act, reporting diffidence of doctors in answering calls, especially at night. Reports of fee overcharged for services rendered are also more frequent. One

is able to report that most of the complaints have been satisfactorily adjusted between the complainant and the doctor concerned, with the result that no meeting of the Taxing Committee has been necessitated during the year. Such complaints reflect on the profession as a whole.

Respectfully submitted,

M. T. Macfarlane.

The Registrar's report was accepted by the

ASSOCIATION PAGE

(Continued from Page 95)

Drug Addicts Making the Rounds

Information has been received from the Royal Canadian Mounted Police that at least two well-known drug addicts are making the rounds of doctors' and dentists' offices in attempts to obtain Narcotic Drugs. In each case several aliases have been used, and the story given by the applicant is very plausible. Frequently the complaint is Renal Colic, Diabetes, Neuralgia, face pain caused from bad teeth, etc. The co-operation of the profession is requested since the Narcotic Division is anxious to secure definite evidence in these cases. Recently a series of articles appeared in the local press relating to the drug habit. This series is part of an educational campaign for the public. The profession is once again reminded that the druggist requires a signed and dated prescription before Narcotic Drugs may be delivered to the patient.

Workmen's Compensation Board

During the discussions which the Negotiating Committee of this Association had with the Workmen's Compensation Board, a revised fee schedule was formulated. The negotiations were approved by the Annual Meeting on October 20, 1948. Supplementary reports of the Committee appeared in the December, 1948, issue of the Review (page 11). The proof copy Fee Schedule and Regulations, approved by the Executive Committee on November 14th, printed copies were mailed by the Board to each member of the profession in the province at the end of November. Your attention is directed to section 34 of the Regulations which provide as follows: "All fees shall be subject to taxation by the Board and in the event of any dispute as to the allowance made, the matter may be referred to the fee taxing committee of the Manitoba Medical Association, set up for this purpose, for advice to the Board as to the proper fee to be allowed." The Fee Taxing Committee met for the first time on January seventh, and the co-operation of the profession is requested.

Swiss Drug Firm Establishes Canadian Headquarters in Montreal

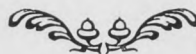
Sandoz Ltd. of Basle, Switzerland, have recently established Canadian headquarters in Montreal under the name of Sandoz Pharmaceuticals Limited. Heading the newly-formed Canadian firm, as secretary and manager, is Gordon E. Graham, well-known pharmaceutical sales representative. Associated with Mr. Graham as Director of the Medical Service will be John M. Grosheintz, D.Sc.

Mr. Graham, who has been representing the parent Swiss firm in Canada for the past two and a half years, received his technical training in the Sandoz plant in Basle, Switzerland. Mr. Grosheintz, who holds his degree of D.Sc. from

the Federal Technical University of Zurich, Switzerland, was a Research Associate at the Banting Institute from 1937 to 1944 and has also served at the head Sandoz plant in Basle.

Sandoz is noted throughout the world for its research work in the fields of plant and synthetic chemistry. Its specialties include preparations for treatment of migraine headaches, heart and circulatory diseases, nervous affections, allergies, etc.

The expansion of distributing facilities resulting from this new Sandoz establishment in Canada has long been desired by the parent firm in Basle as a necessary result of its constant growth in the world-wide pharmaceutical industry.



American College of Surgeons Announces 1949 Sectional Meeting Schedule

The American College of Surgeons announces that six 2-day Sectional Meetings will be held between January 7 and April 13, 1949, for physicians and surgeons, and professional personnel of hospitals. A seventh meeting, to be held in the west in the latter part of April, will be announced later. The latest developments in medical science and in hospital service will be presented at each meeting. The schedule follows:

Date	City	Headquarters
Jan. 7-8	Edgewater Park, Miss.	Edgewater Gulf Hotel
Feb. 14-15	Houston, Texas	Rice Hotel
Mar. 11-12	Kansas City, Mo.	Hotel President
Apr. 15-16	Washington, D.C.	Statler Hotel
May 21-22	Buffalo, New York	Statler Hotel
June 12-13	Edmonton, Alberta	MacDonald Hotel

Conferences for the hospital personnel and for the medical groups will run concurrently. A joint meeting of the two groups will open at 8.30 a.m. Each day with the showing of medical motion pictures, followed by separate sessions at 10.00 a.m. and 2.00 p.m. for the physicians and surgeons and the hospital representatives respectively, will be held daily. Separate afternoon sessions, beginning at 2.00 o'clock, will be held for the two groups. There will be a dinner meeting followed by a round-table conference on the first evening.

According to Dr. Dallas B. Phemister, of Chicago, President of the American College of Surgeons, several hundred persons are expected to attend each of the Sectional Meetings. Prominent local and visiting medical and hospital authorities will address the sessions.

Twenty-first Anniversary Year of Harofe Haivri

The Hebrew Medical Journal, Volume II, 1948

With the appearance of Volume II, 1948, The Hebrew Medical Journal, edited by Moses Einhorn, M.D., concludes its 21st successful year of publication.

In publishing the Journal, the editors aim to meet the need for a medical journal written in Hebrew, with English summaries, thus aiding greatly in the advancement and development of Hebrew medical literature.

This issue contains an article on Hypertensive Arterial Disease by Benjamin Jablons, M.D. There is also a discussion on clinical observations and treatment of 190 cases of Malaria in Palestine, Dr. P. Ephrati of Tiberias.

In addition, under the heading of "Personalia," biographical sketches of Professor Heinrich Finkel-

stein, great pediatrician; Professor Max Neuburger, renowned medical historian; and Dr. Solomon Solis-Cohen of Philadelphia, are presented.

For further information, communicate with the Editorial Office of The Hebrew Medical Journal, 983 Park Avenue, New York 28, N.Y.

Department of Veterans' Affairs

Senior Interne and Assistant Resident Appointments, Deer Lodge Hospital

There will be vacancies for 26 Senior Internes and 9 Assistant Residents at Deer Lodge Hospital, effective June 1, 1949.

Qualifications for appointment to Interne positions are—graduation from an approved Medical School—for appointment to the position of Assistant Resident, one or two years post-graduate training.

Senior Internships are available on a rotating basis, providing training in General Medicine, and General Surgery which will include either Urology or Orthopedics. If a period of training in Obstetrics is desired, this can be arranged with General Hospitals in the City. Senior Internships may also be arranged to provide a year's training limited to Internal Medicine, Psychiatry, General Surgery, Urology, Orthopedics, Neurosurgery, Pathology and E.N.T.

Assistant Residency appointments will be available in:

- | | |
|--------------------|----------------------|
| 1. Orthopedics | 5. Internal Medicine |
| 2. General Surgery | 6. Pathology |
| 3. Neurosurgery | 7. Radiology |
| 4. Urology | 8. Psychiatry |

There is no rotation of Services for Assistant Residents.

Salaries

As no board and quarters are supplied at Deer Lodge Hospital, salaries are paid on the under-noted scale:

Senior Internes—\$1,080 to \$1,800 per annum.

Assistant Residents—\$1,800 to \$2,700 per annum.

Deductions for income tax are made from the above rates.

Applications

Official application forms may be obtained by writing or phoning the Hospital Superintendent of Deer Lodge Hospital. When applications are being submitted, type of training desired and minimum salary acceptable to the applicant, should be clearly stated.

W. R. Dunlop, M.D.,
Hospital Superintendent.

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Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1948		1947		TOTALS	
	Nov. 28 to Dec. 31, '48	Oct. 31 to Nov. 27, '48	Nov. 30 to Dec. 27, '47	Nov. 2 to Nov. 29, '47	Dec. 28, '47 to Dec. 31, '48	Dec. 29, '46 to Dec. 27, '47
Anterior Poliomyelitis	4	11	3	8	133	597
Chickenpox	433	330	213	207	3017	1457
Diphtheria	5	7	8	3	45	82
Diphtheria Carriers	0	1	1	3	9	20
Dysentery—Amoebic	0	0	0	0	3	1
Dysentery—Bacillary	3	1	0	0	16	7
Erysipelas	6	6	2	2	40	41
Encephalitis	0	0	0	0	4	81
Fluenza	5	10	3	3	145	161
Measles	485	209	47	218	1345	6955
Measles—German	0	0	9	1	34	42
Neisseria Meningococcal Meningitis	0	2	1	1	14	16
Rumps	249	188	88	96	2069	1535
Strabismic Neonatorum	0	0	0	0	0	1
Pneumonia—Lobar	14	5	6	4	149	183
Puerperal Fever	0	0	0	2	1	6
Scarlet Fever	24	26	10	46	243	230
Serous Sore Throat	3	0	1	0	21	15
Smallpox	0	0	0	0	0	0
Status	0	1	0	0	6	5
Tachoma	0	0	0	0	1	2
Tuberculosis	240	83	96	1	1442	1637
Typhoid Fever	0	0	0	2	9	9
Typhoid Paratyphoid	0	0	0	0	2	0
Typhoid Carriers	0	0	1	0	2	2
Undulant Fever	0	0	0	0	12	7
Whooping Cough	7	12	84	124	296	1293
Gonorrhoea	143	83	99	119	1478	1927
Syphilis	61	24	34	37	498	582
Diarrhoea and Enteritis, under 1 yr.	10	11	7	6	169	165

Four Week Period, November 28 to December 25, 1948

DEATHS FROM REPORTABLE DISEASES

For Four-Week Period December 1, to December 28, 1948

DISEASES	*743,000 Manitoba	906,000 Saskatchewan	3,825,000 Ontario	2,962,000 Minnesota
(White Cases Only)				
Approximate population.				
Anterior Poliomyelitis	4	1	7	80
Chickenpox	433	564	2570	—
Diarrhoea and Enteritis	10	—	—	—
Diphtheria	5	4	29	6
Dysentery—Amoebic	—	—	1	7
Dysentery—Bacillary	3	3	—	5
Encephalitis	—	2	—	—
Erysipelas	6	1	3	—
Infectious Jaundice	—	—	6	—
Fluenza	5	1	20	2
Measles	485	143	422	36
Measles, German	—	36	66	—
Neisseria Meningococcal Meningitis	—	1	5	6
Rumps	249	82	790	—
Pneumonia Lobar	12	—	—	—
Scarlet Fever	24	17	158	212
Serous Sore Throat	3	2	10	—
Tuberculosis	240	27	75	337
Typhoid Fever	—	1	2	1
Undulant Fever	—	—	4	9
Whooping Cough	7	18	106	23
Gonorrhoea	143	—	256	—
Syphilis	61	—	184	—

*This includes five weeks ending December 31, 1948.

Urban—Cancer, 53; Lethargic Encephalitis, 1; Pneumonia Lobar (108, 107, 109), 3; Pneumonia (other forms), 6; Syphilis, 2; Tuberculosis, 6; Diarrhoea and Enteritis under 1 year, 1. Other deaths under 1 year, 16. Other deaths over 1 year, 173. Stillbirths, 12. Total, 201.

Rural—Cancer, 30; Measles, 2; Pneumonia Lobar (108, 107, 109), 3; Pneumonia (other forms), 5; Syphilis, 1; Tuberculosis, 8; Diarrhoea and Enteritis (under 1 year), 2; Other diseases of skin, 1. Other deaths under 1 year, 15. Other deaths over 1 year, 157. Stillbirths, 13. Total 185.

Indians—Pneumonia Lobar (108, 107, 109), 2; Pneumonia (other forms), 6; Syphilis, 1; Tuberculosis, 6. Other deaths under 1 year, 2. Other deaths over 1 year, 1. Total, 3.

This final period in the year is five weeks instead of four and this should be kept in mind when comparing with four week periods. In reviewing this period there is nothing of special significance but we do have the totals for the year 1948 and certain figures stand out.

Poliomyelitis shows more cases than in a non-epidemic year but less than one quarter the number in 1947.

Diphtheria with only 45 cases shows a definite improvement over 1947 when we had 82 cases (the lowest number in any year until 1948).

Encephalitis—Only four cases.

Only one case of **Puerperal Fever** and none of **Ophthalmia Neonatorum**!

Typhoid Fever—Only nine cases and two carriers discovered.

Gonorrhoea and Syphilis—Both show a definite decrease.



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Recent Accessions

From October, 1947, to October, 1948

Textbooks and Reference Textbooks

er, F. H. Gifford's Textbook of ophthalmology; 4th ed. Saunders, 1947. 512 p.

ley, Hamilton. A short practice of surgery; 7th ed. Lewis, 1946. 1097 p.

tedo, W. A. Pharmacology, therapeutics and prescription writing; 5th ed. Saunders, 1947. 840 p.

k, A. C. Obstetrical practice; 4th ed. Williams & Wilkins, 1947. 966 p.

d, William. Surgical pathology; 6th ed. Saunders, 1947. 858 p.

d, William. A textbook of pathology; 5th ed. Lea & Febiger, 1947. 1049 p.

ot, R. C. Physical diagnosis; 13th ed. Williams & Wilkins, 1942. 888 p.

lander, C. L. Surgical anatomy; 2nd ed. Saunders, 1939. 858 p.

il, R. L. A textbook of medicine; 7th ed. Saunders, 1947. 1730 p.

istian, H. A. The principles and practice of medicine; 16th ed. Appleton-Century, c1947. 1539 p.

istopher, Frederick. Minor surgery; 6th ed. Saunders, 1948. 1058 p.

isher, Martin. Fundamentals of bacteriology; 4th ed. Saunders, 1944. 824 p.

ld, G. M. Gould's Medical dictionary; 5th ed. Blakiston, c1947. 1528 p.

y, Henry. Anatomy, descriptive and applied; 9th ed. Longmans Green, 1947. 1597 p.

rk, P. B. Practical physiological chemistry; 2th ed. Blakiston, 1947. 1323 p.

man, Leon. The practice of urology. Saunders, c1938 ('45). 923 p.

aston, T. B. A synopsis of regional anatomy; 4th ed. Churchill, 1948. 436 p.

astone, R. W. A textbook of midwifery; 3th ed. Black, 1948. 570 p.

an, E. O. Textbook of bacteriology; 14th ed. Saunders, c1945 (1948).

ner, H. T. Human pathology; 6th ed. Lippincott, c1942. 817 p.

Maximow, A. A. A textbook of histology; 5th ed. Saunders, 1948. 700 p.

Monrad-Krohn, G. H. The clinical examination of the nervous system; 8th ed. Lewis, 1947. 380 p.

Novak, Emil. Textbook of gynecology; 3d ed. Williams & Wilkins, 1948. 742 p.

Parsons, Sir J. H. Diseases of the eye; 11th ed. Churchill, 1948. 732 p.

Percival, G. H. An introduction to dermatology; 11th ed. Livingstone, 1947. 349 p.

Perera, C. A. May's Manual of diseases of the eye; 19th ed. Williams & Wilkins, 1947. 521 p.

Price, F. W. A textbook of the practice of medicine; 7th ed. Oxford University Press, 1946 (1947). 2034 p.

Romanis, W. H. C. The science and practice of surgery; 8th ed. Churchill, 1948. 2 v.

Sollman, T. H. A manual of pharmacology; 7th ed. Saunders, 1948. 1132 p.

Strecker, E. A. Practical clinical psychiatry; 6th ed. Blakiston, 1947. 476 p.

Stitt, E. R. Practical bacteriology, hematology and parasitology; 10th ed. Blakiston, c1948. 991 p.

Wiggers, C. J. Physiology in health and disease; 4th ed. Lea & Febiger, c1944. 1176 p.

Young, James. A textbook of gynaecology for students and practitioners; 7th ed. A.* & C. Black, 1947. 471 p.

Reference Books (Not Lent)

McElligott, Maurice Gerald. Spanish-English medical dictionary. Lewis, 1946. 250 p.

The Pharmacopoeia of the United States of America; 13th ed. Mack, c1947. 957 p.

Wilmer, W. H. Atlas, fundus, oculi. Macmillan, 1934. 34 p.

Medical Library

In accordance with the request of the Winnipeg Medical Society, the Medical Library will be open to physicians from 8 to 10 p.m. Monday through Friday, from February 1st to April 30th.

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